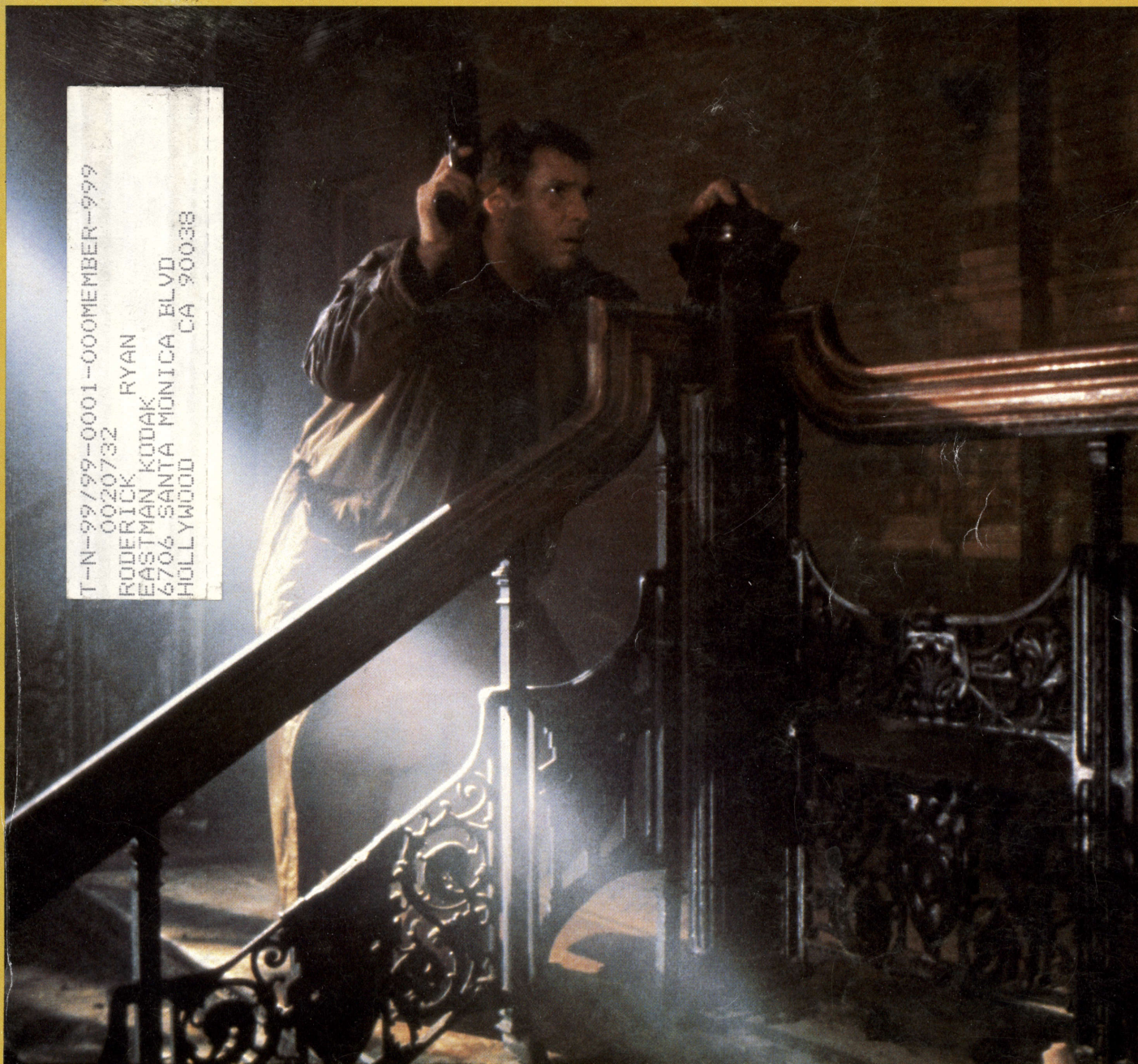


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American Cinematographer

INTERNATIONAL JOURNAL OF FILM
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JULY 1982



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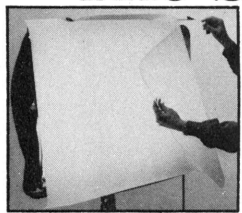
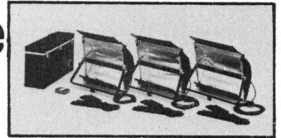
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American Cinematographer

International Journal of Motion Picture Photography and Production Technique

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JULY, 1982

VOL. 63, NO. 7

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ON THE COVER

Harrison Ford stalks the villain in the climactic scene from **BLADE RUNNER**, a detective thriller combining a vision of the future with a homage to the classics of the Forties. Directed by Ridley Scott and Photographed by Jordan Cronenweth with special photographic effects by Douglas Trumbull's Entertainment Effects Group.

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FROM THE EDITOR

First of all I'd like to introduce myself and our new associate editor, George Turner. I have been working with AMERICAN CINEMATOGRAPHER as the video editor and business manager since last November. Prior to that I worked in film production as a writer, producer, director and editor. Some of you may have seen a film I made on the life of Charlie Chaplin called THE GENTLEMAN TRAMP. I was also a newsreel cameraman in the army and have done 16mm camerawork on some of my own films. I mention all this partially to reassure readers who might otherwise assume that putting a video editor in charge of the magazine signals a move away from film. I am basically a "film person," but I am fascinated by the new technology and intrigued by all the options now available for producing moving images. On a more personal note, I grew up in Birmingham, Alabama, and studied philosophy and literature at Yale and Cambridge before embarking on a career in film.

George Turner is probably best known for his book, "The Making of King Kong." He has been editing a book on special photographic effects which the A.S.C. will publish in the fall, and has just joined the staff of the magazine as the associate editor. George is an artist who combines experience as a production illustrator on films with a varied background in publishing. He grew up in Santa Monica, California, and Amarillo, Texas; but so far as I can tell he spent most of his youth in a movie theater. He brings to the magazine a wealth of historical knowledge and an unbounded love for the magic of movies.

One of the responsibilities George is assuming is the addition of an historical dimension to AMERICAN CINEMATOGRAPHER. His article, "The Phantom Set," is our first regular monthly feature exploring the history of motion picture production. Upcoming articles will deal with such topics as special effects work for GONE WITH THE WIND, the production of GUNGA DIN and the making of GRASS. We believe that these articles

will not only make for highly enjoyable reading but that they can also contribute towards the preservation of a precious heritage.

Another addition we would like to make to the magazine is a letters-to-the-editor column. We want to hear from you, and we believe that a letters column can serve as a forum for the exchange of valuable information that might not otherwise be included in the magazine. If you have developed a technique for doing something that you think might be of interest to other readers, please share it with everyone via a letter to the editor. If you disagree with something in one of the articles of feel that something has been overlooked, let us know. We want the magazine to serve your needs and respond to your interests. Obviously the only way we can make it do so is if we hear from you.

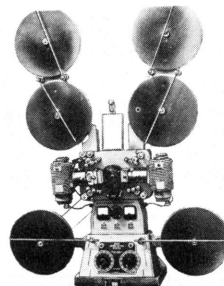
This is a very exciting time for the motion picture industry. Electronic production techniques are revolutionizing the way we work—radically increasing efficiency and opening up new vistas creatively. At the same time traditional film craftsmen have a lot to offer video productions. Faster is not necessarily better. Speed is valuable only if it permits increased creative flexibility or greater attention to detail. Video production has now reached the point where it can take full advantage of the techniques developed by three generations of film craftsmen. The beauty and emotional impact of moving images are a function of the artistry of the craftsmen creating the images and not of the medium on which the images are recorded. We at AMERICAN CINEMATOGRAPHER believe that we are in a unique position to contribute to the advancement of cinematic art both by making electronic technology more accessible to film craftsmen and by fostering an appreciation for the best traditions of cinematography and of all the associated crafts which have made the movies the greatest art form of our century.

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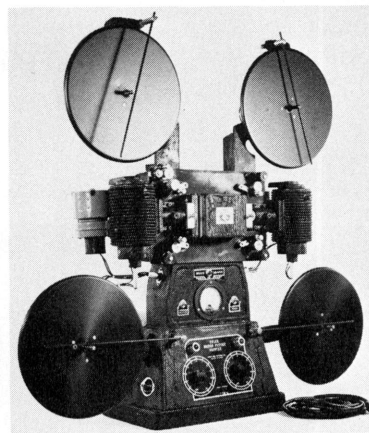


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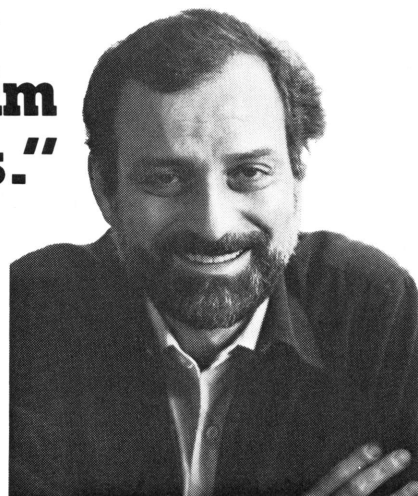
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"The results were spectacular thanks to Kodak's new 5293 film and TVC's Chem-Tone process."

Bill Fucci.
Fucci Productions



Director, Bill Fucci of Fucci Productions, who pioneered Broadway show commercials with "Pippin" discusses the challenges presented by his latest TV commercial "Encore" for Radio City Music Hall.

"Up to now, the problem when filming a live show was to meet the lighting requirements of film without destroying the mood of the show's original lighting.

"Now, with the help of Kodak, TVC and Director of Photography, Jack Horton," Mr. Fucci continued, "I've been able to solve this problem in a way that simply didn't exist before. Using

Kodak's new high speed film 5293 and TVC's Chem-Tone, I could leave the shows original lighting intact and yet still capture the effects I wanted. The results were spectacular.

"As we looked at the dailies, I heard comments like, 'rich looking, great depth, fine grain.' The fact is that without the new high speed film stock 5293 from Kodak and TVC's Chem-Tone process these results would not have been possible.

"As usual TVC was with me every step of the way. Right from the start, Danny Sandberg backed my choice of film stock and his

technicians worked with me, until every detail was right. The constant quality of their work and their unfailing helpfulness are two things you can rely upon in these unreliable times. And TVC's Chem-Tone process has been lighting up dark corners for years. Thanks, Jack Horton. Thanks, Kodak and thanks TVC."

Bill Fucci/Director
Fucci Productions

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The entire cast of "Encore" Radio City Music Hall's 50th anniversary stage show.

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CINEMA WORKSHOP

By ANTON WILSON



VTR CABLES

The automobiles of the late 50's were characterized by large fins and multiple tail lights. The rear of modern ENG/EFP cameras are no less characterized by the Snap-On* battery bracket and the normal proliferation of electrical connectors. Some of these connectors usually facilitate external accessories such as a remote CCU or a test/set-up device. Two connectors that are always present are the VTR connector and the video out BNC. While this BNC connector is the primary and simple method to get video out of the camera, there are many circumstances where the VTR connector offers advantages.

The VTR connector, unfortunately, is not standardized and varies depending on camera manufacturer. It always involves multiple pins, and it is thus quite obvious that this connector facilitates several functions. While the type of functions available through the VTR connection also varies from model to model, certain ones have become somewhat standard.

All VTR/camera cables include "video out" and some form of trigger signal to start and stop the VTR. Most also include a "video return" feature enabling the camera viewfinder to be used as a monitor to playback previously recorded material. Those VTR's providing actual off-the-tape monitoring while recording (Hitachi HR-100 type C, JVC 4700 U-matic, etc.) can feed this off-the-tape image to the camera via the camera/VTR cable. By pressing the "video return" button while shooting, the cameraman can switch the viewfinder over to monitoring this off-the-tape image in lieu of the normal camera video-out.

While no one can argue the practicality of these functions, there is one additional feature common to most VTR connectors that is enigmatic, at best. This is the ability to power the camera via the VTR/camera cable. Many consumer or home video users employ one battery internally within the VTR and power the camera from this same battery via the camera/VTR cable. While this practice may make sense for the

* TRADE MARK ANTON/BAUER, INC.

amateur, it has several serious drawbacks for the professional. Before a professional makes a final decision on this matter, he should consider the following points:

1. Voltage—Unlike most consumer cameras which are designed for 12 volt supplies, virtually all professional video ENG/EFP cameras are designed to operate with a 13 to 14 volt nominal battery source. While some of these professional cameras may operate marginally with a 12 volt battery, they clearly provide optimum performance with the proper 13–14 volt battery. This is due to the fact that all professional cameras employ advanced switching type (constant power) regulators. These regulators convert excess voltage into power, thus the 14 volt battery will provide more than 20% more power and more than three times the reserve voltage of a 12 volt battery. Moreover, under adverse conditions, or as batteries age, the benefits of the 14 volt battery becomes increasingly important. Under certain circumstances, the 12 volt battery may cease to operate altogether where the 14 volt can still deliver full capacity. This is because most professional cameras cease to function much below 11 volts. Unfortunately, a 12 volt battery can go much lower than this. On the other hand, the normal operating range of the 13 or 14 volt battery is well above this 11 volt cut-off.

The problem is that all portable VTR's require 12 volts, not 14. Thus if the camera is being powered by the VTR, it is only getting 12 volts. As a matter of fact, with the combined current load of both camera and VTR as well as the voltage drop of the cable, the camera will typically get only 11½ volts or so. This totally nullifies the advantages of the camera's wide range switching regulator and gets dangerously close to the 11 volt cut-off of the camera thus greatly increasing battery problems.

The preferred method is to use a 14 volt battery on the camera and a 12 volt battery on the recorder, thus optimizing each unit. An even better approach is to employ 14 volt batteries for both camera and VTR applications. Most custom Snap-On* brackets for all portable VTR's employ solid state devices that drop 14 volts to 12 volts. Thus the user can standardize on its 14 volt Snap-On* battery for all applications. When snapped onto the camera, it delivers the proper 14 volts, yet when snapped onto the VTR, it delivers 12 volts.

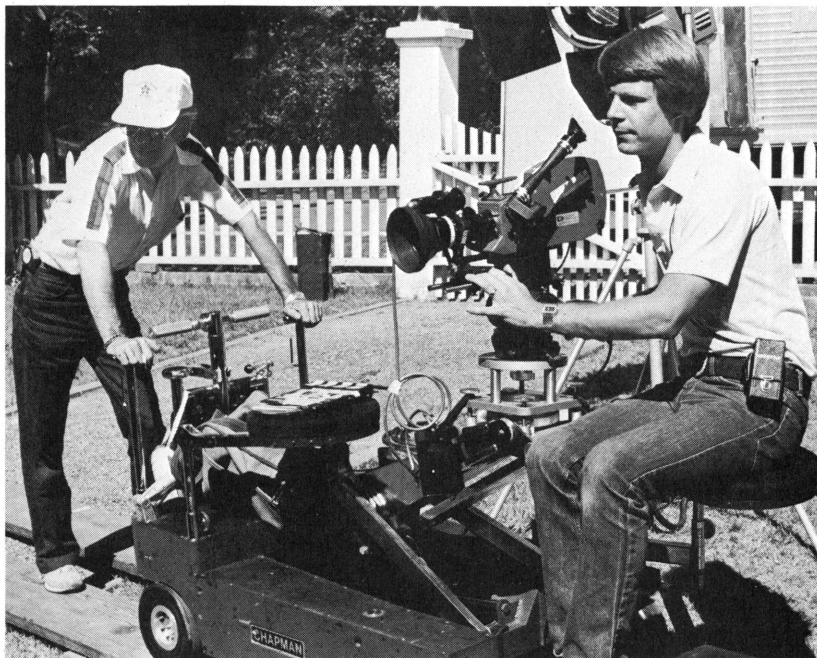
2. Flexibility—There are many times when the professional may disconnect the VTR/camera cable yet still need the camera to be powered. In deciding camera angles or placement, the cameraman will use the camera as a direction finder, sampling different camera positions. In such a case the VTR need not be lugged around if the camera has its own battery. In addition, there are instances where the cameraman may wish to climb to a relatively inaccessible vantage point such as the roof of a building or a catwalk. In such cases the VTR is usually left in a convenient location and the short VTR/camera cable is replaced with a length of BNC/BNC coax. Once again this flexibility can only exist if the camera carries its own power.

3. Balance—The Anton/Bauer Snap-On* bracket is standard equipment on the rear of virtually every ENG/EFP camera, including the new Ikegami EC-35. In every case, the camera is designed to balance only when the battery is attached. Without the battery, the camera is significantly front heavy which is very fatiguing on the camera operator's arm. In almost every case the cameraman agrees that the extra weight of the battery is negligible compared to the comfort, improved stability and perfect balance that the rear mounted battery provides.

Continued on Page 732

“For size, weight, image registration and quietness, GSMO could well be the new 16mm standard for the industry.”

Randy Love
Cinematographer



“It’s been more than a year since I bought my GSMO from Adolph Gasser, Inc., complete with 3 quick-change 400’ coaxial magazines, orientable viewfinder with 7” extender, 5 plug-in batteries, Angenieux 9.5–57mm zoom lens, etc.

“Compared with any other competitive 16mm camera package on the market, I saved at least \$10,000!” says Randy Love, the San Francisco-based cinematographer whose recent credits include sports coverage for ABC-TV’s *Wide World of Sports*, commercials for KGO-TV, and the cinematography on “*The Hidden Struggle*”—Dawn Flight Productions’ documentary film about mentally retarded adults.

“But money was not my prime consideration. Feature for feature, compared with the Eclair ACL II, the Aaton 7 LTR and the Arri 16SR, I found that GSMO was *the best buy* for 16mm production as well as documentary applications.

Image Registration

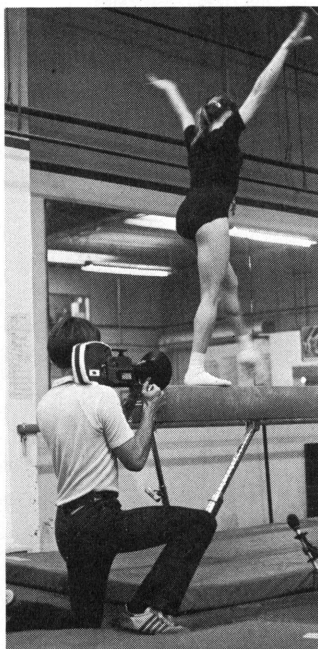
“Before I bought my GSMO, I checked it out thoroughly, shooting a number of registration tests. The image registration was just as good as *any* of the competition. As good as you can get in a 16mm camera! In fact, the 16mm negative of “*The Hidden Struggle*” was blown up to 35mm with outstanding results.

Soundstage Quiet

“Quiet enough for soundstage filming, my GSMO checks in at 28 dB! It is so quiet, my soundman frequently checks the green indicator light on the side of the camera to make sure that it’s running!

Weight and Configuration

“The GSMO’s excellent balance, low configuration, and ultra light weight (approximately 12 pounds fully loaded,



including lens) are essential for the type of shooting that I do: a lot of handheld shooting and shooting from the hip—‘floating’ the camera Steadicam-style, so to speak! When you shoot 15 magazines per day, every pound you shave off the camera weight makes an enormous difference.

Variable Speeds

“The high-speed capability comes in handy for special effects, commercials and documentaries. 64 fps is a very good slow-motion rate. Probably as good as one can possibly expect from a camera as quiet as the GSMO. At the mere flick of a switch, you get variable speeds from 12 fps to 64 fps—including 24 and 25 fps sync sound speeds, so I can shoot for European TV without having to rent another camera!

System Interchangeability

“GSMO batteries, optional accessories and lenses are interchangeable with the CP-16R. So that I can easily rent a CP-16R body with a couple of mags whenever I need a backup camera, further enhancing my 16mm production and documentary capabilities.

Quick Turnaround

“Even the most rugged camera needs service periodically. Cinema Products’ well deserved reputation for responsiveness and outstanding factory backup—as well as an extensive GSMO dealer/service network all over the country—means quick turnaround. In my experience, sometimes as quick as 24 hours! For a freelance cameraman like myself this is of critical importance.”



Shooting from the hip, Randy Love “floats” his GSMO Steadicam-style.

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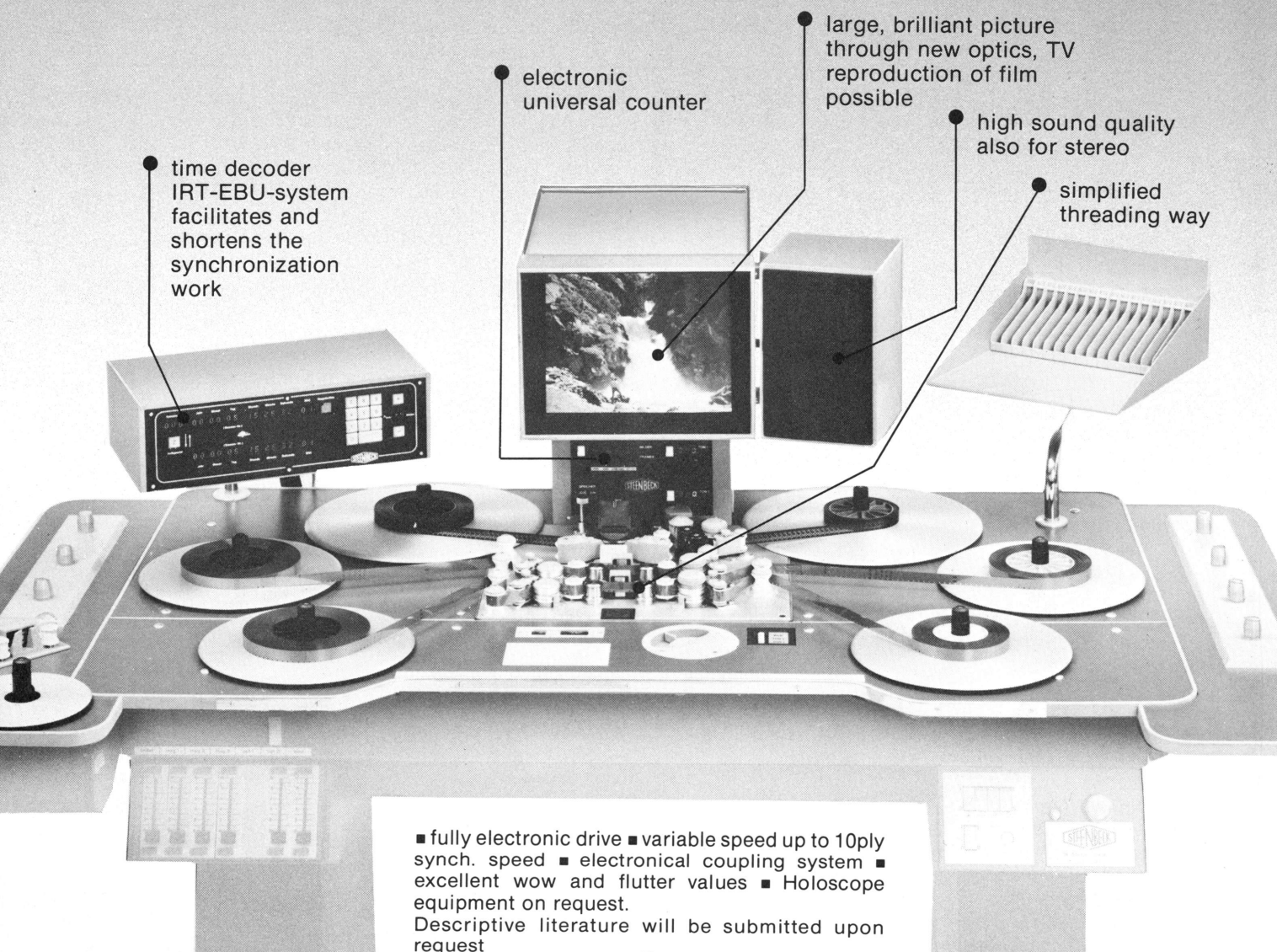
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TALKING TECHNICALLY

By DAVID W. SAMUELSON

THE PROS AND CONS OF FAST FILM STOCKS

The aspect of the new high-speed film stocks that isn't always recognized is that while it is all very well having an extra one or two — or three or four — stops of film speed when shooting in low-level lighting conditions, be they ambient or created and controllable, when shooting in everyday God-given daylight they can pose a problem.

I remember some while ago being shown the prototypes of a then new series of wide-aperture lenses and saying, much to the dismay of the demonstrator, "But they only stop *down* to T/11, what do you do in sunlight when the normal exposure with 100 ASA film and an 85 filter is T/16 or T/18?" A question which has, I am sure, been echoed many, many times by camerapersons who have been caught out by this exposure Catch 22.

Now we have a situation with 250 — 500 ASA film stocks where the "normal" bright daylight exposure is T/25 or T/32 or even smaller and, thus, beyond the stopping-down capability of any regular cine lens.

All lenses lose quality due to refraction when stopped down beyond a certain point, depending on their design, and lens manufacturers limit the extent to which a lens can be stopped down. For this reason I have always thought that a film speed of 100 ASA was just right because it fitted in so well with the minimum possible aperture of most lenses.

In the immediate past the problem has been dealt with either by using lenses which do stop down to T/22 and when that is not possible or desirable, by using a combined 85 and neutral density filter (an 85ND3 knocks off an additional stop of light, for instance), by using a separate

neutral density filter or by using a camera with an adjustable shutter to reduce the exposure time.

Another alternative is to use a Polascreen, which reduces exposure by 1½ stops. Two Polascreens can be rotated relative to one another to reduce the exposure by 2½ stops or more.

In future, it seems that we may have to rely on these techniques more often, or else carry two film stocks around when there are possibilities of having to shoot in low and in bright light conditions.

Of course, if one is working on a single production for a long period, shooting the same sort of thing under controlled conditions this will not be a problem, camera crews will just stick to one filmstock, but film making isn't always like that, especially as one of the virtues of the new stock is that it intercuts so well with the slower stock both for grain structure and "look" so that there will be a much greater tendency to carry both stocks around.

To those of us who in the past have had to cope with all the B&W and colour reversal stocks that were (and still are) available, just keeping two different stocks apart and not mixing them up should not be too difficult.

One of the problems today, compared with my young days, is that the edge numbers which used to be printed on, and by which it is possible to identify the type of film stock once it has been removed from its original can, are now photographed on and are a latent image which cannot be seen until the film has been developed. Once developed, Type 5247 can be identified by the letter "F" at the extreme left of the footage number (e.g. F4X 12345) and 5293 by the letter "H" placed just ahead of the actual footage number (e.g. 4X

SHUTTER ANGLE/ EXPOSURE TABLES

EXPOSURE TIMES AT VARIOUS
SHUTTER ANGLES (24 fps)
as fractions and as decimal parts of
a second

Shutter Angle °	Exposure at 24 fps	
200	1/43	0.023 sec
190	1/45	0.022
180	1/48	0.021
175	1/49	0.0203
172.8	1.50	0.020
170	1/51	0.0197
160	1/54	0.018
150	1/58	0.017
144	1/60	0.0166
140	1/62	0.016
130	1/66	0.015
120	1/72	0.014
110	1/79	0.013
100	1/86	0.012
90	1/96	0.010
80	1/108	0.009
70	1/123	0.008
60	1/144	0.007
50	1/173	0.006
40	1/216	0.005
30	1/288	0.003
20	1/432	0.002
10	1/844	0.001

at 25 fps: 180° = 1/50 0.02 sec

H12345). 7247 has the letters "ECN" and 7293 has "ECH" within the edge print information (e.g. Kodak *ECN* or *ECH* Safety Film). The latent image edge identification of both 16mm and 35mm Fujicolor 100 ASA negatives is "N7" and Fujicolor A250 is "N8". Gevacolor negative is marked "N".

Prior to development 5247 and 5293 can only be positively differentiated by the label on the can, although if the two emulsions are viewed side-by-side shortly after being exposed to light for the first time, 5293 appears to be warmer or redder in colour than 5247. However, both films darken fairly quickly on exposure to light, after which time the differences become less readily apparent. Perhaps it would be a good idea for assistants who may find themselves in a position of having to identify unlabelled rolls to keep a marked sample of each so they can become familiar with the differences. Failing that, a foot or two of an unknown stock will have to be processed, even by a dip test, to reveal the edge identification.

NEUTRAL DENSITY FILTERS

	Percentage transmission	Filter factor	Exposure Increase (stops)
ND 0.3	50	2	1
ND 0.6	25	4	2
ND 0.9	12½	8	3
ND 1.2	6	16	4
ND 1.5	3	32	5
ND 1.8	1½	64	6

COMBINED COLOUR CORRECTION AND NEUTRAL DENSITY FILTERS

85N3 85BN3 etc.	32	3	1⅔
85N6 85BN6 etc.	16	6	2⅔
85N9 85BN9 etc.	9	11	3⅔

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and reflections down to a minimum.)

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A benefit for TV and commercial film crews has been recently added to the H16 EL: a special TV cut-off mask in the viewfinder.

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Regular Fujicolor 100 ASA stock, types 851 and 852 look yellowish-brown compared to the 250 ASA high-speed stocks, types 8518 and 8528, which look reddish brown.

As a result of all of this more magazines will be required where both stocks need to be ready to hand, more and darker ND filters will be needed and we are going to see an even greater demand for cameras which have adjustable shutters.

Perhaps the film stock manufacturers could also see their way to supplying a loose small label with a low adhesive backing which could be stuck neatly onto the magazine when it is loaded and save all those ghastly strips of unsightly camera tape which get stuck indiscriminately onto magazine lids to proclaim the type of stock loaded.

Other problems that faster film stocks are creating are caused by the reduced amount of light available to the reflex viewfinder. This makes it more difficult for the camera operator to see a clear bright picture when using the film stocks at their maximum speeds, making those cameras which have the brightest viewfinder image all the more attractive, and making a very significant reduction in the amount of light available to TV viewfinder systems.

With the ever-growing popularity of reflex TV viewfinders on feature and commercial film productions, particularly when there are special effects involved—to say nothing of its indispensability with the Louma Camera Crane—this poses a major problem and those of us who provide such systems are having to work hard to make improvements by all the optical and electronic means at our disposal, but to gain four stops when the system is already being pushed to its near maximum is not easy.

On the plus side, it will mean that Producers, Directors, and Directors of Photography who want the best possible flicker-free, TV viewfinder image it is possible to achieve will be able to opt for a pellicle mirror-reflex system in place of a spinning mirror without having to increase the amount of light required to compensate for the light loss. One of the less well known advantages of the Panaflex camera is that because it has a focal plane shutter it is possible to replace the spinning mirror with a pellicle mirror to give a flicker free reflex viewfinder, albeit with the loss of 1/2 stop of light to the film.

Among the films which we have recently serviced which have made use of this facility are THE GREAT MUPPET CAPER and DARK CRYSTAL where the performances by puppeteers is entirely dependent on the TV viewfinder picture, which has to be as near to what they were used

to with broadcast TV equipment, and VICTOR VICTORIA and the two new PINK PANTHER pictures currently in production where Blake Edwards finds that the flicker-free image is a much better aid to judging artists performances. Pellicles are also popular with Special Effects camera crews when shooting Travelling Matte against a blue backing and viewing a combined image TV picture.

It is often said that the new fast film stocks are going to make great savings in feature film lighting costs. I think this is only so to a certain extent. Certainly less light is required but where creative lighting is involved, rather than "illumination," the actual number of lamps employed is likely to be more or less the same, although they will be one size smaller, and lighter. It will also mean that a much larger area can be lit by a single light source to give only one hard shadow if that is what is required, but the luminaire to do that will still be the largest possible one if the requirement is to cover the maximum area.

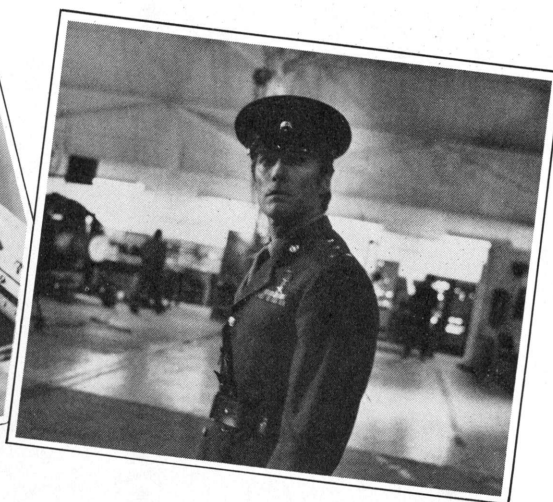
Yet another aspect of having high-speed stocks is that they give us two compatible stocks with a grain differential.

Some years ago when members of the B.S.C. were asked what they would most like to have in the way of a second Kodak film stock complementary to 5247, a very considerable number asked for a slower fine grain stock, much along the lines of what in B&W days was Background X in relation to Plus X and Double-XX. This was no doubt because so many members of the B.S.C. are currently involved in special effects films where the combining of second generation background images with a first generation foreground image poses a major problem of quality control if believability is to be maintained.

Now, of course, with complementary stocks manufactured by both Fuji and Kodak we have just this. The faster films, having slightly coarser grain structures, make the 100 ASA types into "fine grain" stocks. Already on KRULL, a major special effects film currently being shot at Pinewood Studios, the background plates for both Front Projection and Travelling Matte are being shot on 5247 (and very often on Vistavision cameras as well) and the foreground on 5293, and by all accounts the results are very satisfactory. ■

**September's
American Cinematographer
features
"E.T., THE EXTRA-
TERRESTRIAL"**

FIREFOX



EASTWOOD'S FIREFOX TAKES OFF WITH COLOR BY DELUXE

In Clint Eastwood's new film released through Warner Bros., the Russians have developed the ultimate warplane, code-named "Firefox." It's a MIG 31 that flies, undetected by radar, at six times the speed of sound and is operated by the pilot's thought waves. To neutralize the threat to NATO, American intelligence finds an ex-combat pilot who is ideally suited to steal the sophisticated weapon.

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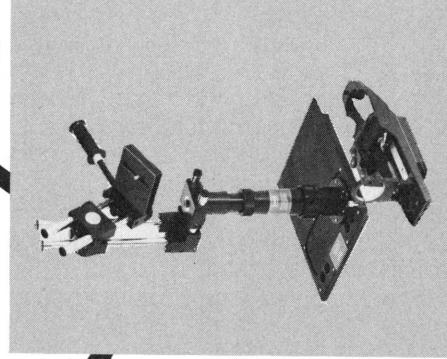
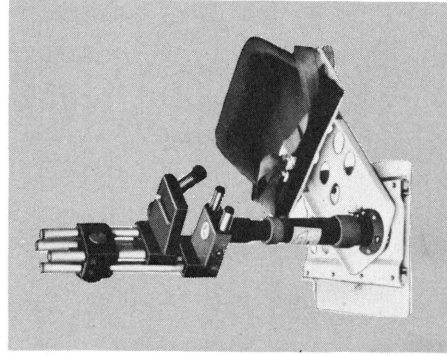
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Q & A



This organization's membership is made up of manufacturers and dealers throughout the world. *Direct all Q&As to AMERICAN CINEMATOGRAPHER, P.O. Box 2230, Hollywood, CA 90028.*

Q Is there a formula by which I can determine how many lighting fixtures, and of what size, I can plug into an electrical outlet without fear of blowing fuses or breakers?

A Yes, and it would be well to commit this one to memory, particularly if you're doing any location lighting work: $\text{watts} = \text{amps} \times \text{volts}$

For example, a 1,000 watt source operating at 120 volts, draws 8.33 amps. (1,000 divided by 120 equals 8.33.) Two 1,000 watt sources, drawing a total of 16.66 amps, could therefore be operated from a typical 20 amp line without fear of blowing a fuse or a breaker (again, assuming a 120 volt line source).

While on the subject, a pre-shoot survey of the location involved is not complete without a thorough examination of the available electrical supply. Do not assume that if a room has five duplex outlets, it has a separate 15 or 20 amp breaker for each one. Indeed, they may have been spaced for convenience and ALL are hooked up to a single line plus the same line may be powering the overhead lights. Locate the fuse or breaker box and, if practical, turn off each one in succession and see what is on each line. Keep in mind that each line may be feeding power to other rooms, even on other floors. Examine the wall receptacles. Your lights probably have ground pins. Do the receptacles? Will you need suitable, safe adapters? Turn off the overhead lights. Does the switch control any of the wall outlets? Make your examination as thorough as possible. It will save you hours of agonizing later.

Q I need help on the best methods for cleaning film. It seems the best method is ultrasonic cleaning but I need to clean my film at home. I have been using an ANTISTATIC cleaner, but it seems to rub the color off the film and doesn't clean well.

A Kodak advises us that the ultrasonic cleaning machine which commercial laboratories use is excellent, but too costly for the home user.

How well the film is cleaned at home is usually a matter of technique rather than the cleaning solvent used. It is necessary to use the proper cleaning cloth and to change that cloth before it becomes badly saturated with dirt. One should wind the film at a steady rate—being sure that the solvent evaporates before rewinding. The matter of color rubbing off is not one to be concerned about. The cloth used should be of velvet, Canton flannel or a similar soft, absorbent material. Kodak and other makers stock the proper solvent lubricant. Full data are printed in Kodak's publication, HANDLING, REPAIR AND STORAGE OF MOTION PICTURE FILMS, Pamphlet #D-23, obtainable from Rochester.

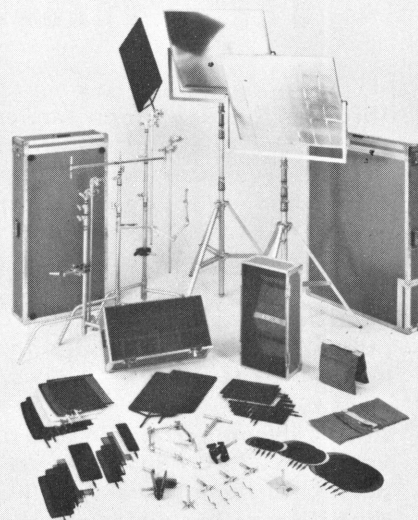
Q I would like to know the difference between the "Spectra II" and the "Weston Master II"; which one has the larger film speed (ASA), the foot candles, and if there is a type of Spectra that works for cinematography and still photography?

A The Spectra Combi II is basically an incident type exposure meter which is used by the cinematographer and still photographer. It can be used as a reflected-type meter like the Weston by a simple function switch. The Weston Master II was one of the older basically reflected-type meters produced many years ago and was calibrated in candles/meters² (a unit of reflected light). The Weston Master II does not read in foot-candles (a unit of incident light). ASA film speeds on the Spectra II is 0.10 to 25,000 capable of measuring foot-candles from 0.008 to 80,000. The Weston Master II has been out of production for a number of years and is no longer available. The Spectra Combi II exposure meter is in current production and available.

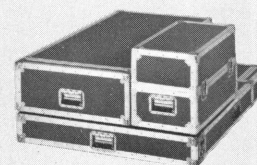
We encourage you to send us your questions on cinematography, as well as questions on the technical use of motion picture equipment. All inquiries will receive our prompt attention. ■

CREATIVE LIGHTING

An OPEN . . .



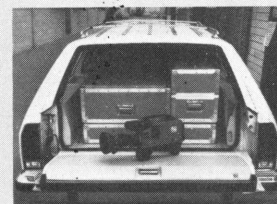
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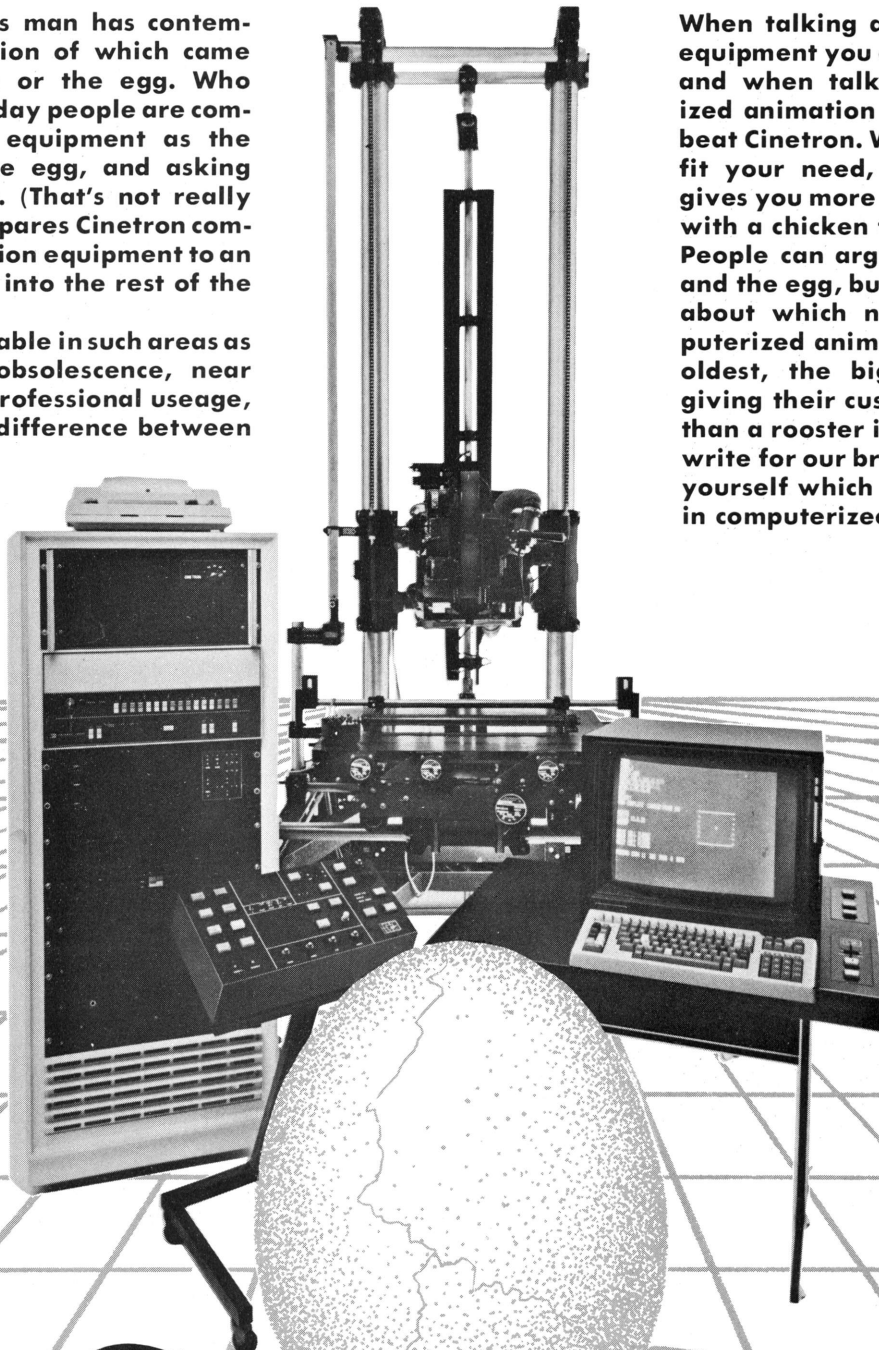
the industry or...

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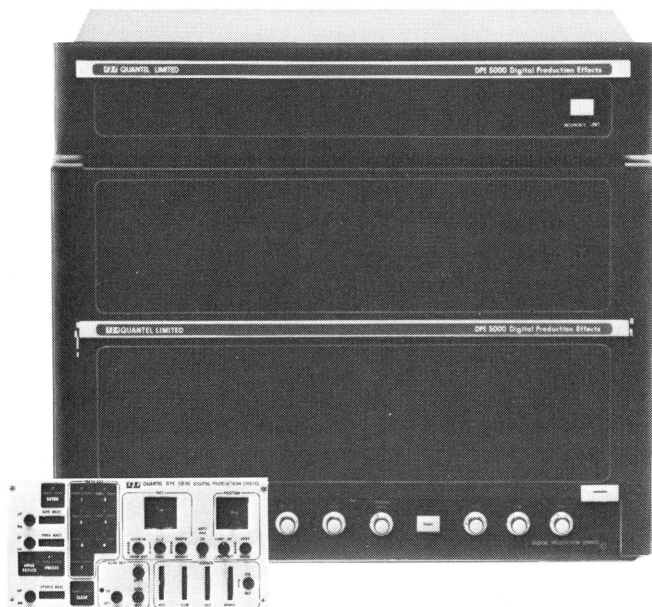
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THE BOOKSHELF

By GEORGE L. GEORGE

FOR REFERENCE AND RESEARCH

The best all-around reference work on the cinema, *THE FILM ENCYCLOPEDIA* by Ephraim Katz, now in an attractive paperback edition, covers exhaustively personalities of the international film world, as well as its historic, technical and industrial aspects. Comprehensive, erudite and reliable, this massive volume's 7000+ entries constitute an authoritative treasure-trove of cinematic scholarship (Putnam/Perigee \$14.95).

The 1982 edition of *INTERNATIONAL FILM GUIDE* proves once again to be a timely total survey of world film production. Edited by Peter Cowie with his usual competence and reliability, it discusses 49 countries in an informative appraisal of their most notable films, names 5 "directors of the year" (including Karel Reisz), and details many related production activities and services (A.S. Barnes \$9.99).

The first volume of the *ARIEL CINEMATOGRAFICA REGISTER* series, covering the extensive holdings of the Deutsches Filmmuseum in Frankfurt-am-Mein, Germany, includes some 300 cameras manufactured during the last 60 years. Kodak, Debrie, Bell & Howell, Pathé, Bolex, etc., mostly 16 and 8mm, are illustrated and described in this historically invaluable repertory, ably edited by Pete Ariel (DM 125, approx. \$50).

In the 3rd, enlarged edition of *HALLIWELL'S FILM GUIDE* to world movie production of the last 50 years, over 12,000 movies are listed and evaluated by Leslie Halliwell with expertise and thoroughness. Full credits, synopses, ratings and quotes from reviews are included (Scribners \$39.95).

A stimulating how-to book, *STOP MOTION ANIMATION* provides practical guidance to the creation of 3-dimensional special effects. Written by experts and edited by Don Dohler, it discusses the use of armatures, clay, foam, latex, as well as skin, fur, and other materials and tools (Cinema Enterprises, 12 Moray Court, Baltimore, MD 21236; \$6.50).

The 1982 edition of *AUDIOVISUAL MARKET PLACE*, a standard multimedia guide, provides a thorough regis-

ter of available services, supplies and sources. It lists AV software producers, distributors and service firms, AV hardware manufacturers and dealers, plus a "yellow pages" directory of companies, key personnel and related data (Bowker \$39.95).

All nominees and winners of the 5 topmost US entertainment honors—Oscars, Emmys, Tonys, Grammys and Pulitzer Prize Plays—are listed from their inception through 1981 in an impressive and serviceable compilation, **VARIETY: MAJOR U.S. SHOWBUSINESS AWARDS**, painstakingly edited by Mike Kaplan (Garland \$50).

Over 250,000 personalities in film, television and the theatrical professions are listed in **PERFORMING ARTS BIOGRAPHY MASTER INDEX**. This basic source book directs the reader to over 100 reference works where each subject's biographical data appear in full (Gale \$85).

Specifics of the informational services of some 6700 associations and public relations groups active in AV media and performing arts are provided in **LIVELY ARTS INFORMATION DIRECTORY**. Edited by Steven R. Wasserman, this comprehensive volume deals with the nature, functions and programs of these organizations (Gale \$72).

An indispensable source of film programming for festivals, schools, associations and individuals, the 7th edition of James L. Limbacher's **FEATURE FILMS ON 8MM, 16MM AND VIDEOTAPE** offers over 23,000 movies available from 235 major distributors. Listings are thoroughly detailed and conveniently cross-indexed (Bowker \$65).

In the updated edition of **REEL FACTS**, a pocket encyclopedia of the movies, Cobbett Steinberg compiles statistics, figures and data covering awards, festivals, "ten best" lists, money-making stars, codes and regulations, and much, much more (Vintage/Random House \$5.95).

SCREEN AUTHORSHIP

Two newly published filmscripts expand existing screenplay collections. **DELIVERANCE**, directed by John Boorman, photographed by Vilmos Zsigmond, ASC, is the original version of James Dickey's script, differing in emphasis and structure from the released film (So. Illinois U. Press \$17.50/6.95). **FICTION INTO FILM: A WALK IN THE SPRING RAIN**, directed by Guy Green, photographed by Charles Lann, ASC, in-

cludes Stirling Silliphant's script, Rachel Maddux' novella, and Neil D. Issacs' alert production notes (U. of Tennessee Press \$14.50).

The relationship between movies and literature is assessed by Gabriel Miller in screening the novel, a perceptive reevaluation of 8 authors whose neglected works inspired such successful films as *Paths of Glory*, *The Pawnbroker* and *They Shoot Horses, Don't They?* (Ungar \$10.95/5.95). Conversely, **BIJOU DREAM**, an entertaining novel about the movie industry by insider Jack Warner, Jr., seems to approximate in style, subject matter and plot development an all-too-familiar and well-researched blend of film history and fiction (Crown \$15.95).

Critical reviews of the films of 35 directors—Sam Peckinpah, Jean Renoir, Michelangelo Antonioni, Billy Wilder, Jean-Luc Godard among others—are extensively excerpted in **CONTEMPORARY LITERARY CRITICISM** (Vol. 20), edited by Sharon R. Gunton (Gale \$68). Biographical data and literary achievements of such film personalities as Alan Alda, Shirley MacLaine, René Claire, Ivan Tors, Julie Harris, Anne Jackson are detailed in **CONTEMPORARY AUTHORS** (Vol. 103), edited by Frances C. Locher (Gale \$68).

LADIES' NIGHT AT THE MOVIES

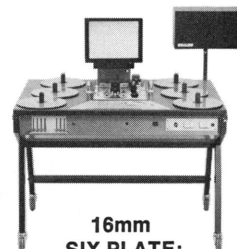
In her unconventional autobiography, **LULU IN HOLLYWOOD**, legendary star and cult figure Louise Brooks blasts unmercifully the film industry of the 30s and 40s, when her independent ways, high artistic standards and flaunted opinions alienated studio big shots and jeopardized her budding career (Knopf \$15).

Curtis Nunn's **MARGUERITE CLARK** affords a well-deserved memorial to "America's darling of Broadway and the silent screen" who starred in some 40 films between 1914 and 1921, after a successful stage and opera career (Texas Christian U. Press \$15).

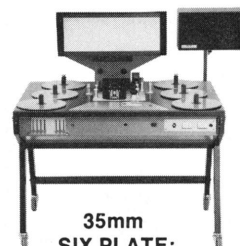
In **MAE WEST**, George Eells and Stanley Musgrove paint a documented and highly readable portrait of the timeless symbol of a sexy, acting style she virtually created (Morrow \$15.50).

Thomas Kiernan's biography, **JANE FONDA: HEROINE FOR OUR TIME**, emphasizes society's impact on the star's dynamic lifestyle and the versatile screen personality that established her among our great performers (Delilah/Putnam \$9.95).

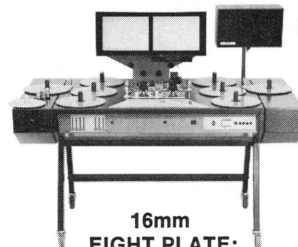
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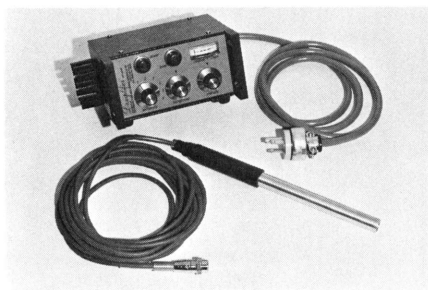
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IN PRODUCTS, SERVICES AND LITERATURE

2000 WATTS OF LIGHTING MAGIC

The "gadget" that lighting electricians have speculated about for years is finally here. The L'amplifier is a photo cell-controlled light dimmer that provides precise synchronization of high-amperage studio lighting with on-camera, low-level light sources. It is a linear device (a true amplifier—not just an on/off switch) that varies the output of incandescent studio lamps in step with the varying intensity of practical sources—sources as insignificant as the glow of a cigarette.

The basic unit controls a 16 ampere



load with a 25 ampere continuous overload capacity. Plenty of power for those subtle source effects that are always so troublesome. If more power is required—for pumping up a location neon practical or slaving to the flash of a molotov cocktail—plug in a power block—or control big lamps with our electro-mechanical shutters. Both devices can be slaved to follow the output of the basic L'amplifier.

Power blocks come in 50 and 100 ampere units. They plug into the L'amplifier outputs and allow you to control 50 to 500 amperes or more. Supply input and load output are terminated in clamp-type terminals to allow you flexibility in choice of appropriate connectors.

The electromechanical shutters were designed to provide linear control of HMI's and other sources that cannot be dimmed, to speed up the response of large lamps that suffer from filament lag and to provide dimming capability on all lighting devices when color temperature shift is a consideration. A manual dimmer in the cord allows use independent of the L'amplifier. Or plug the shutters into the L'amplifier for automatic operation. Each shutter consumes a maximum of 25 watts; making the

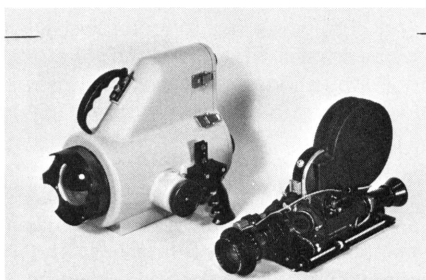
L'amplifier/shutter power handling capacity virtually limitless. Shutters are silenced.

For more information: Motion Picture Industries Australia Pty. Ltd., 266 Coventry Street, South Melbourne, Victoria 3205, Australia.

UNDERWATER PACKAGE

From Oceanic comes an underwater cinema package featuring the Arriflex Model "S" 16mm camera. Through a remarkable modification process to the Arri it is physically converted to a 400 foot coaxial daylight load keeping the low profile of the camera. A large format optical system is provided for underwater filming that gives corner-to-corner sharpness. An electrical zoom control is installed for the 5.9mm to 57mm Angenieux zoom lens which allows a smooth zooming effect underwater. The popular 5.9 mm Angenieux lens can also be utilized in this system offering a sharp, distortion free image.

The aluminum housing features a corrected, domed port and controls are provided for focus, aperture, electric zoom control and motor speed. The housing is balanced for underwater



filming and is neutrally buoyant in the water. For more information write to: Oceanic, 14275 Catalina St., San Leandro, CA 94544.

HI-IMPACT TUBE CASES

Three new multi-use cases for carrying movie, video and still tripods and other accessories safely are now available from A&J Manufacturing Co., Los Angeles.

Made from hi-impact ABS plastic, these cases are lightweight, easy to handle and have vertical ribs incorpor-

ated into the design for extra strength.

The case bottoms are reinforced with a two-inch layer of polyurethane foam under a 1/4" layer of high density polyethylene sheet. This prevents the tripod tips from damaging the case and helps absorb shock during transit.

Heavy-duty nylon strapping secures the cover to the tube. A heavy-duty steel, spring-loaded handle is incorporated into the case for carrying. For further information: A&J Manufacturing Co., 11121 Hindry Ave., Los Angeles, CA

AVAILABLE IN U.S.

Available from Bardwell & McAlister, Inc. is the Mitrulux L131 hand-held follow spotlight. It weighs less than 12 pounds and operates on 110/240 volt AC. The kit contains wide angle and telephoto lenses along with the standard lens. It also contains a tripod adapter, shoulder strap, filters and spare bulbs.

The light produces 31,000 lumens of even illumination at 3200-Kelvin with a 1000-watt projector bulb as the source.

With the telephoto lens, at 100 feet, the Mitrulux produces 40 footcandles. At 15 feet it produces 1440 footcandles with a maximum spread of two feet six inches or a minimum spread of nine-and-a-half inches.

For information contact Bardwell & McAlister, Inc., 7051 Santa Monica Blvd., Hollywood, CA 90038, (213) 466-9361.

MATTHEWS ANNOUNCES LIGHTING CONTROL FOR THE ROAD

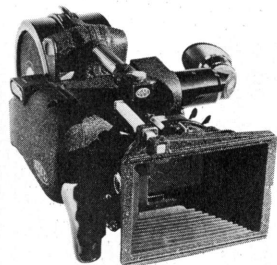
The new VIDEO MATTH-PAK, a compact lightweight, easily transportable lighting control kit designed with the professional video Lighting Director in mind, was recently introduced by Matthews Studio Equipment, Inc.

The new kit consists of 36" x 30" aluminum reflectors, combo reflector stands, century stands, flags, scrims, silks, dots, fingers and more, for a total of forty-seven (47) of the most widely needed products used everyday in video lighting control. All equipment fits into three (3) compact, lightweight cases designed to be transported in the back of a conventional van or nine-passenger station wagon, leaving ample room for additional production equipment.

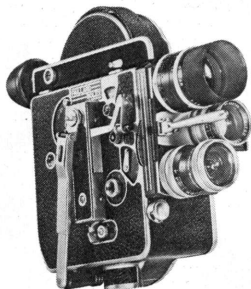
The VIDEO MATTH-PAK kit lists for \$4,870. complete. For further information: Matthews Studio Equipment, Inc., 2405 Empire Avenue, Burbank, CA 91504, (213) 843-6715.

USED CAMERA SALE

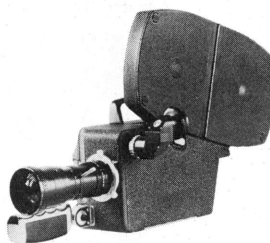
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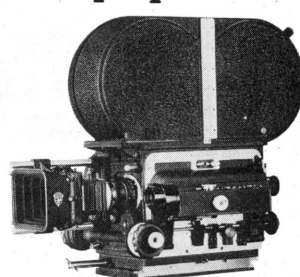
Arriflex 35 BL



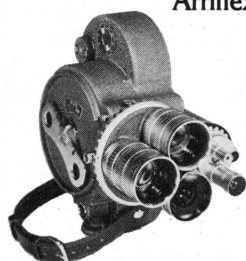
Bolex Rex



CP-16R



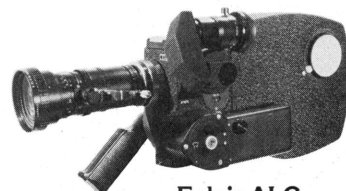
Mitchell BNC



Fimo 70DR



Arriflex 16S/B



Eclair ALC

35mm CAMERAS

	Sale Price
35 Arri BL II w/2-400' Mags, 16, 24, 32, 50, 85mm Zeiss Lenses, Scales, Lens Blimp, Matte Box, Cable, Battery & Cases	\$62,500.00
Arri IIBV w/C S Motor	\$ 5,500.00
Arri IIC Hi speed body w/motor and control	\$ 7,250.00
Arri IIC Body, C S Motor, Matte box	\$ 4,200.00
Cineflex, 1-200' Mag, 2 Lenses, Motor & Base Adapter	\$ 695.00
Eclair 35mm Camerette, 2-400', 1-100' Mags. 4-Kinoptic Lenses, Power Cable, New Power Belt, Filter Kit, Case	\$ 4,995.00
Eyemo 35mm MDL 71KM-Single lens w/Filter slot, New	\$ 1,995.00
Eyemo 35mm 71-Spyder Turret, 50, 75, 100mm Lenses, Filter Slot (C212)	\$ 995.00
Mitchell BNC Camera Pkg. w/220V Sync Motor, 4-1000' Mags. 28, 40, 50, 75mm Baltar Lenses, Finder, Cable & Cases	\$19,500.00
Bell & Howell 2709, 75mm Ektar, Vari-Shutter, Focus Wheel	\$ 4,000.00
Mitchell NC Prism Reflex Body	\$ 6,500.00
Mitchell FC 70mm Body, Excellent	\$10,500.00
Mitchell FCD 70mm Body, Very Good	\$10,500.00

16mm CAMERAS

	Sale Price
Arri 16MB w/10-100' Zeiss, Gov Mtr, 1-200', 2-400' Mags, Cine 60 Belt, Quick Release, Case (C232)	\$ 8,950.00
Arri 16S Body, 3 Lenses, V S Mtr, Cable	\$ 4,250.00
Arri 16ST Body w/V S Motor	\$ 3,895.00
Arri 16S, Pilot Gen w/C S Motor	\$ 4,100.00
Arri 16ST Body w/V S Motor, Matte Box	\$ 3,250.00
Arri 16SB Body w/V S Motor, Matte Box	\$ 4,350.00
Arri 16S Body, w/V S Motor	\$ 3,795.00
Arri 16M, 1-400' Mag, 12-120 Ang. V S Motor, Matte Box, Belt, Case	\$ 8,500.00
Arri 16SB w/2 400' Mags, 1 Torque Motor, V S or C S Motor, 2 Cases	\$ 5,990.00
Eclair 16mm ACL, 3-200' Mags, 2-Lens Mount Adapters, 2 handgrips, 12V battery, 2 cables, Canon 12-120mm Zoom, Multi-Duty Motor, Ang. Dove V.F. (C219)	\$ 9,500.00
CP-16 Camera, Ang. 12-120mm zoom, w/AV30 VF, Body & Lens only	\$ 3,750.00
Bolex H16, Body only	\$ 375.00
Bolex H16, 24mm Switar	\$ 395.00
Bolex H16, 75mm Yvar	\$ 295.00
Bolex EBM w/16-100mm POE-Vario-Switar, Electric, 1-400' Mag, Grip, Base Adapter, Battery Container, Cables & Case	\$ 3,295.00
Beaulieu R16 Body only	\$ 595.00
Beaulieu R16 Body w/25mm Ang.	\$ 995.00
Beaulieu R16B, 200' Mag, Ang. 12-120mm Zoom, Auto Iris, 1000 MAH Batt, Case	\$ 1,995.00
Beaulieu R16 PZ w/Ang. 12-120mm Zoom, Handgrip, 1000 MAH Batt., Battery Chgr., 1-200' Mag, Case	\$ 2,495.00
Auricon CM-75-FM	\$ 795.00
Auricon PRO 600	\$ 1,800.00
Auricon CM-74 G	\$ 2,500.00

16mm CAMERAS

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Fimo 70C Spyder Turret-Body	\$ 495.00
Fimo 70DE-Body	\$ 250.00
Fimo 70DL-Body	\$ 295.00
Fimo 70KRM, 15, 75mm Ang., 25mm Comat	\$ 1,250.00
Fimo 70DR, Flat Base, 10, 25, 75mm Ang.	\$ 1,495.00
Fimo 70S w/25mm Ektar, 128 fps	\$ 1,195.00
Fimo 70DR Traid model 77, 204" Shutter	\$ 250.00
Fimo 70DLC Spyder Turret Body	\$ 650.00
Fimo 70DL 75mm Wollensak 25mm Lytar, 75mm Pan Cinor, (C212)	\$ 650.00
Fimo 70KRM, Body only	\$ 775.00
Fimo 70DL w/25mm Lens & Case	\$ 350.00
Fimo 70DR w/25mm Lens & Case	\$ 450.00
Fimo 70HR	\$ 595.00
Mitchell 16 Rackover Body #587	\$ 4,500.00
Maurer B-M 16mm Silent Pro Type 506-A 1-400' Mag	\$ 1,950.00
Maurer Model J, 115 VAC Mtr., 1-400' Mag	\$ 1,500.00
Maurer BMJ w/Finder, 24fps Motor, as is	\$ 1,795.00
Maurer BM-Pro w/Finder, 1-400' Mag, 24 fps Motor	\$ 2,150.00
Eastman Reflex w/110 VAC Motor, 1-400' Mag and Case, as is	\$ 1,695.00
B & H 70KRM, Open Back, Veeder Counter, Filter Slot, 15, 25, 75mm Lenses w/Objectives. Excellent	\$ 1,395.00
Beaulieu R16 PZ w/Ang. 12-120mm Zoom, Handgrip, 1000 MAH Battery, Chgr., 1-200' Mag and Case	\$ 2,495.00
Kodak Cine Special 1, w/2-200' Mags, w/15, 25, 63, 152mm Lenses	\$ 1,095.00
Kodak Cine Special 1, w/1-200' Mag	\$ 550.00
Kodak Cine Special 1, w/1-100' Mag, & Electric Remote Control Release	\$ 995.00
Miliken DBM 4C High-Speed w/12 to 120mm Ang. Zoom	\$ 3,695.00
Miliken DBM 4A High-Speed, 128/400fps	\$ 2,200.00
Miliken DBM-64 Video Film Recorder System w/Camera, Phase Lock Drive Unit, Camera Control Unit, Maurer "F" Prime Galvo (Less Amplifier) 16mm x 1200' Mag, Reconditioned	\$29,440.00
Traid "Photo Aid" Sequence Camera w/Motor, 12-48 fps	\$ 1,250.00
Benson Lehnner, 200 fps w/Bore-Sight	\$ 1,900.00
Fairchild HS-101 High-Speed 3000/8000 fps/60VDC, 75mm Elgeet Lens, Motor Power Supply Control Box	\$ 1,995.00
Photosonics 16mm-18-400, 12/1000 fps	\$ 2,795.00
Fastax WF-3, 150/8000 fps	\$ 2,795.00

SPECIAL CAMERA SYSTEMS

	Sale Price
CP-16RA w/choice of 12-120mm Canon or 9.5-57mm Ang. Zoom, 3-400' Mags, 2-Batteries, Charger, Shoulder Pad	\$ 9,250.00
CP-16A w/12 to 120mm Ang. Zoom, 2-Mags, Amp & Case	\$ 4,995.00
Auricon Cine-Voice w/Amp. 25mm Lens & Case	\$ 795.00
Auricon Cine-Voice, Body Only	\$ 595.00
Auricon Pro-600 w/2-600' Mags, MA-11 Amplifier & Case	\$ 1,950.00
Auricon Pro-1200 w/12-120mm Ang. Zoom, 2-1200' Mags, MA-11 Amplifier & Case	\$ 3,495.00
Auricon, Yoder Conversion	\$ 395.00
Auricon, F & B Ceco Conversion-Body Only	\$ 395.00
Auricon, General Camera Conversion	\$ 395.00
Auricon, Solux Conversion	\$ 695.00
Bolex Rex V Camera, w/16-100 POE Vario Switar Lens, MST Motor, Power Pack, 2-400' Mags, Torque Take-up Motor, Electric Handgrip, 6-Filter holders, Deluxe Compartment Case	\$ 3,795.00
Arriflex 16BL, w/12-120mm Ang. Zoom, Zoom Motor and Handgrip Control, Eyepiece, Matte Box, 2-400' Mags, Governor Motor (C256)	\$ 8,495.00
Photosonics Action Master 16mm Camera, Mdl. 61-1400' Mag., 12-120mm Ang. Zoom w/ Shade, Cables, Viewfinder, Pistol Grip, Shoulder Pad, (C257)	\$13,500.00

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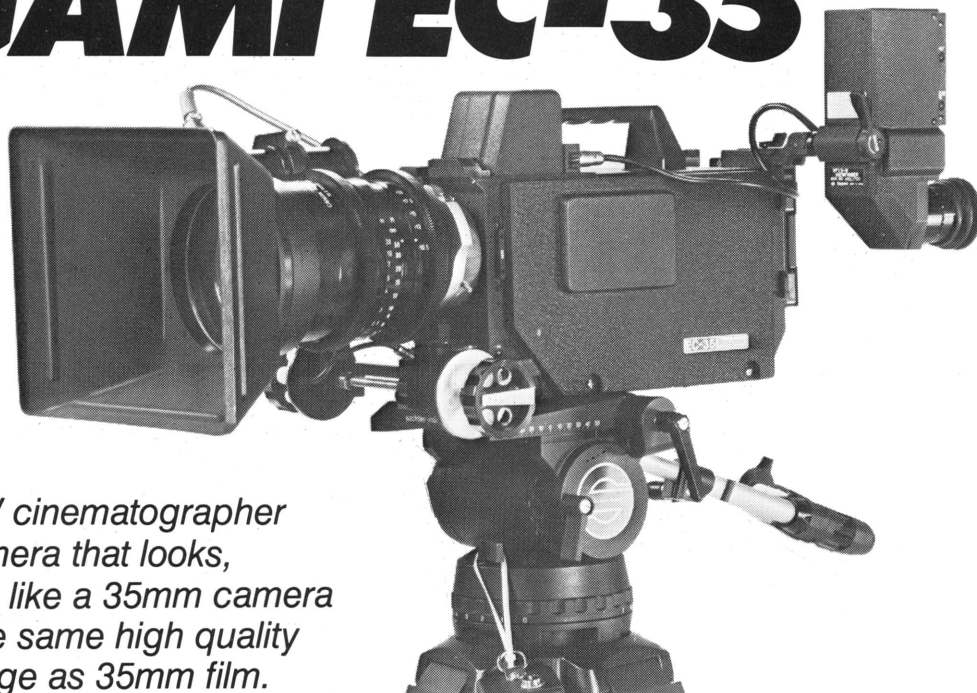
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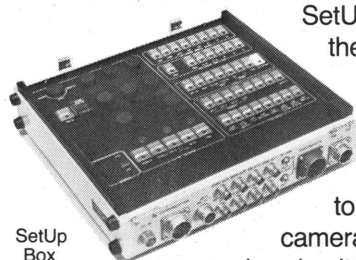
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SetUp Box sets up and aligns the camera in seconds—

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to only 20:1 for other video cameras. • A knee compression circuit that compresses signals



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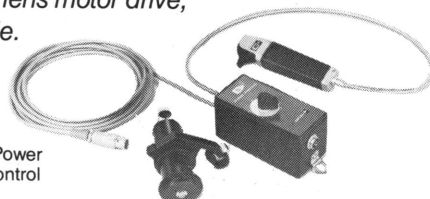
from 600% of the rated signal to 100%.

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- Dynamic Beam focus gives sharper corner to corner detail.

Other features: extremely high resolution and low noise (S/N over 57 db rms). • Full range of five interchangeable fixed focal-length lenses, and zoom lenses.

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VIDEO ADR

A Looping System for Videotape

By STEPHEN ABERNATHY

United Media, makers of the Commander video editing system, has introduced a compact system for doing automated dialogue replacement (ADR) in sync with videotape. Developed for the South African Broadcasting Corporation to facilitate the translation of programming into seven different native

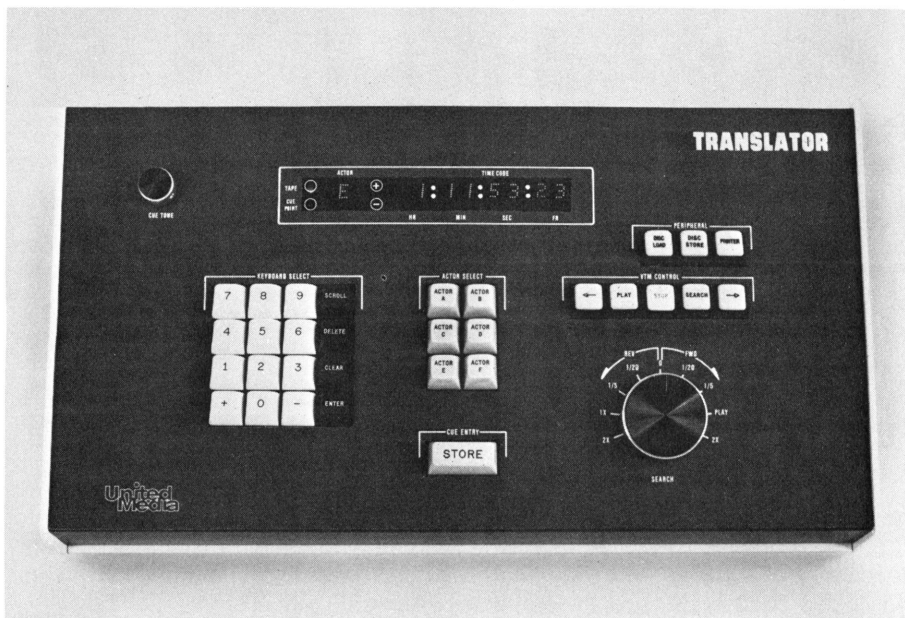
languages for broadcast via a new ethnic television channel, the system has a broad range of applications in both film and video production. It can be adapted for use in music scoring and Foley work as well as being used for replacing dialogue or dubbing into a foreign language. It is compact enough and eco-

nomical enough to be incorporated into virtually any audio post-production facility and is fully compatible with NTSC, PAL or SECAM systems.

In its normal configuration the system is used in conjunction with a ¾" videocassette playback deck and a multi-track audio recorder. As it plays back

The Director looping controller system will generate beeps and visual cues for up to six actors and can synchronize four tape machines. The visual cues are color coded to enable each actor to distinguish his cues from the others and the timing of the cues can be easily adjusted to accommodate for differences in reaction time.





The Translator controller is a simpler "off-line" controller used for spotting and programming the cues. It produces a floppy disk which can then be used during the recording session with the Director controller.

the tape for a given cue, the system generates both audible beeps and a visual cue in the form of a line moving across the screen. Cues for up to six different actors can be pre-programmed on the system, and the cues for each actor will be distinguished so that the audio beeps are routed over one of six channels and the visual cue is colored one of six channels and the visual cue is colored one of six colors. Thus the system makes it possible to dub overlapping dialogue with up to six actors each receiving their own individual cues simultaneously.

The beeps and the cue line can be set to start anywhere from one to five seconds prior to the cue point and the beeps can be set at half-second or full-second intervals. The system is modeled after traditional film looping or ADR techniques with a little additional flexibility. For example if an actor's reaction time seems to be slower, all of his cues can be advanced any number of frames simply by entering the number of frames and hitting the "Actor Reaction" button. Or the beep can be offset independently of the visual cue by entering frames and pushing the "Cue Offset" button. Cues for up to six actors can be pre-programmed in one pass, but only the cues for the actors specified with the "Actor Select" buttons will be displayed during the recording session. The visual cues are either vertical or horizontal lines colored red, green, blue, magenta, cyan or yellow. The vertical lines move across the screen from left to right in the same way a grease pencil

cue does on a film workprint. If two or more actors have cues very close together and they are to be recorded at the same time, it is a simple matter for each to watch only the color assigned to him. The horizontal line cues move from left to right across the bottom portion of the frame. The leading edge hits the right edge of the frame at the cue in point and the trailing edge crosses the right edge of the frame at the cue out point. With more than one cue being displayed simultaneously, the horizontal cues are simply stacked on top of each other.

The pre-programming of the cues is done by viewing a videocassette and hitting a button for each cue in and cue out point. The controller has a knob for running the videocassette forwards and backwards at variable speed up to two times normal. Hitting the in or out cue button in conjunction with the actor select button causes the system to record in its memory the SMPTE time code for the cue and the channel to which it belongs. The data is stored on a floppy disk for use in the recording session, and it can be printed out or displayed on a CRT if necessary for any reason.

There are two types of controllers designed for the system. The first is called the Director, and it is capable of performing all of the functions required for pre-programming and recording cues. The second is called the Translator and is a simple controller designed purely for pre-programming cues. It creates a floppy disk cue cartridge which can be loaded into a system controlled by a Di-

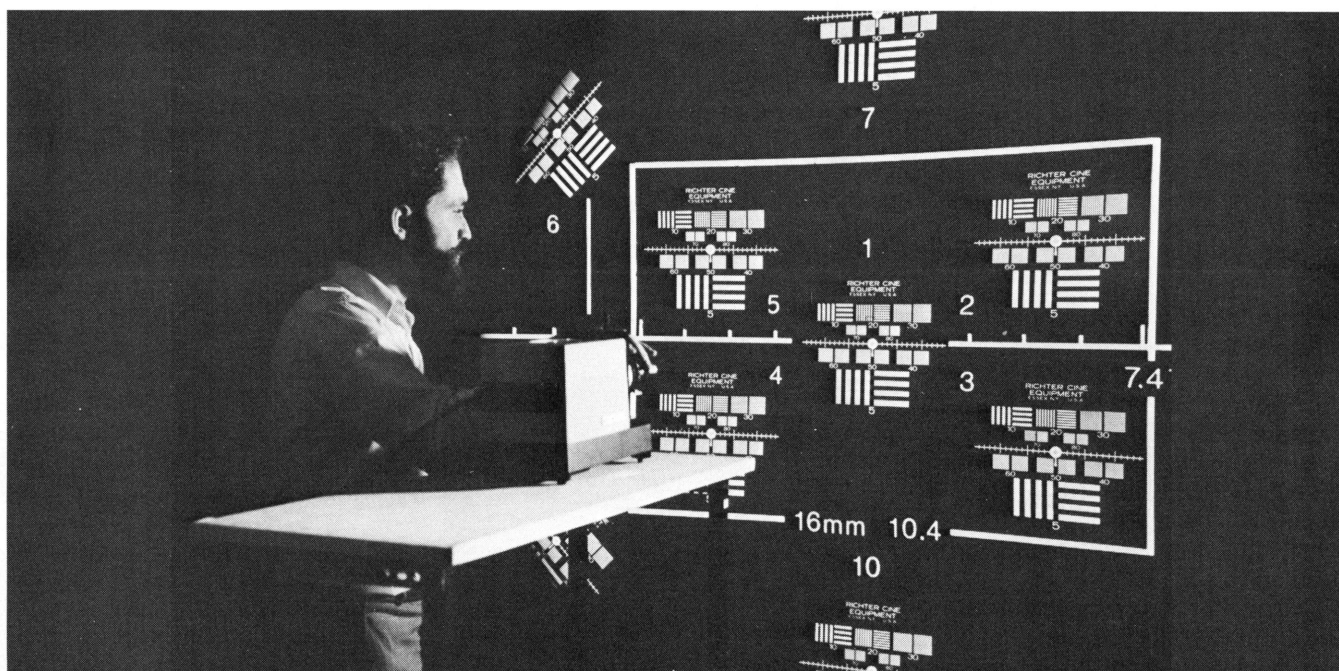
rector for the actual recording session. The Translator is more compact and about half the price of the Director.

Replacing dialogue with this system is a relatively straightforward procedure. You start with a videocassette and a script and either the Director unit or the Translator unit. If the work is being done for a film, it would be a simple matter to transfer the film to videocassette along with some time code. So long as there are not more than six actors involved in any given scene or piece of a scene, all of the cues for the entire videocassette can be recorded in one pass through the show. Obviously Actor A in one scene may not be the same person as Actor A in another scene if there is a large cast involved, but nonetheless a degree of preplanning should enable the cues for any given actor to be fairly consistent. Cue points are selected for each actor and entered by pressing two buttons and a "loop" length is determined by entering a loop in point and a loop out point. One loop can contain a whole series of cues for six actors.

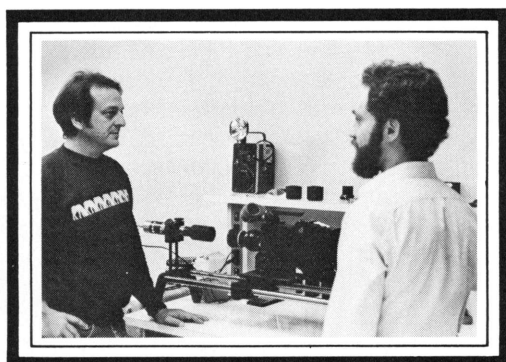
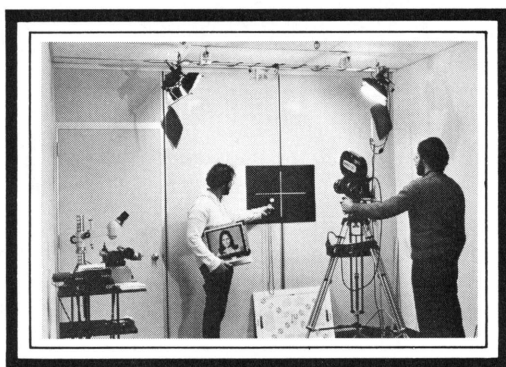
The floppy disk created during the cuing session serves two functions during the recording session. It generates the cues for the performer, and it automatically switches the record head on and off for the proper channel at the proper frame. The controller can synchronize up to four machines. The normal configuration is one videocassette playback deck and one multi-track audio recorder, but additional audio or video recorders can be used. If for example the actors need to hear a music and effects track as they deliver their lines, a second audio playback machine can be synchronized with the system and mixed into their earphones.

If the loop that has been established in the cuing session is too long for the actors to deal with effectively, it is a simple matter to enter a new loop out point and then hit the cue transfer button to make the new loop out point also serve as a new loop in point for the next loop. Similarly it is a simple matter to consolidate loops if the actors in the recording session are able to handle longer loops than had been anticipated. A loop can be previewed for rehearsal purposes and reviewed after it has been recorded in order to check the recording before moving on to the next loop. If a 24 track recorder is used, it is possible to save three takes of each actor on a given loop.

Additional information "The Director" can be obtained from United Media, 4075 Leaverton Court, Anaheim, California 92807 (714) 630-8020. ■



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The 635A – Perfect design from the start

The Electro-Voice 635A is probably the most widely used broadcast microphone currently available. Yet it was introduced back in 1967! There are microphone companies that haven't been around as long as the 635A! What makes a microphone continue to be the broadcasters' favorite after 15 years in the field?

The 635A was designed to be used anywhere. Its screw-machined steel case and mechanically nested parts set standards for durability and ruggedness that the competition still strives for. It was the first omnidirectional microphone designed to have a shaped, rather than flat, frequency response. A rolled off bass response combined with a slightly rising high end make it perfect for vocal reproduction. And it was the first microphone of its type to feature an elastomer

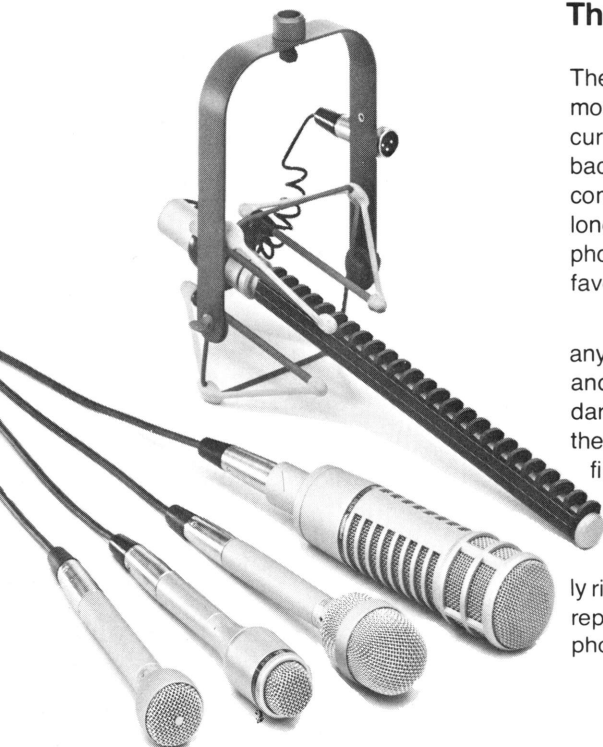
encased head capsule for reduced handling noise and additional protection from severe mechanical shock.

Despite all the technological advances in the broadcast, recording and sound reinforcement industries, the 635A continues to be the "audio man's screwdriver" – a microphone tool that can be used anytime, anywhere, for almost anything. When a product is designed right to start with, there's no need for it to become obsolete. All Electro-Voice professional microphones are designed with the same goal in mind. That's why people think of Electro-Voice as their microphone expert.



600 Cecil Street, Buchanan, Michigan 49107

In Canada:
Electro-Voice, Div. of Gulton Industries (Canada) Ltd.,
345 Herbert St., Gnananoke, Ontario K7G 2V1.



Neiman-Tillar Associates has developed a computerized sound effects and editing system called ACCESS, which is taking sound into the space age. It was in fact a discussion about space technology that helped launch the invention. Larry Neiman and Jack Tillar, principals in Neiman-Tillar Associates, and both experienced in all aspects of film and television post production, decided that if man could go to the moon, then someone could produce a computerized machine of their dreams.

"The idea came from our years of sitting on dubbing stages," says Larry Neiman. "We conceived of some kind of tool that would allow immediate accessibility of sound effects, music or dialogue, with a direct tie to a mixing stage so that we could augment film or tape more easily and with more creativity.

"We were positive that such a machine could be built but had no knowledge of computers. And when it came to talking with computer firms, we found ourselves speaking a different language."

That was seven years ago. Neiman and Tillar finally found a computer company who understood their needs, and the brainchild was born.

"We signed a contract and funded development by putting up our homes, wives and children," jokes Neiman. At the time it was not a laughing matter. There were problems developing the system and the computer firm failed to deliver in the agreed time span.

Although they suffered the setbacks and consequent financial losses, Neiman and Tillar still retained their faith.

"From the few tests we were able to run we were confident that digital computerized sound was feasible," said Neiman. We took over the existing hardware and the talents of Jim McCann, the software programmer, and continued our search for the right group to help us start again."

They were fortunate in finding Bill Deitrick to spearhead the development program. "He understood our visions and concepts and formalized them into a computer hardware package," says Neiman.

Together with Deitrick and McCann, Bill Mainland and Colin Mouat (Neiman-Tillar Associates' sound effects expert and first ACCESS editor), they took the ailing brainchild and gave it the kiss of life.

"Thanks to their combined efforts, we had our prototype working only one year after the disaster."

ACCESS:

A Computerized Sound Effects Editing System

By ALAN GARROTT

By 1979, the system was functioning so well that it earned the industry's highest accolade for Neiman-Tillar Associates and Bill Deitrick—an Academy Award for creative development and engineering.

Although delighted with the recognition, Neiman considered they had reached only the basic stage of development with ACCESS and did not rush to tell the world about the wonder machine.

Says Neiman: "We did not think it proper or practical to exploit the award and push ACCESS until we could deliver a complete system as we envisaged. Only now can we talk about expanding our marketing plans for ACCESS.

"With additional research and development, we have perfected the digital computerized system so that a good sound effects editor can cut like a wizard—*quickly and creatively.*"

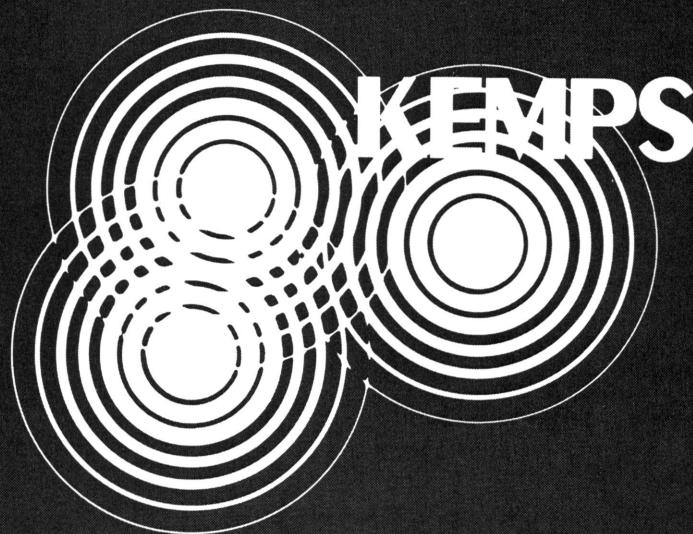
What is digital sound?

Basically there are two forms of sound recording: analog and digital. An analog recording consists of a continuously variable medium whose modulations are analogous to the modulations

of the sound wave. The clearest example of this is probably the variable area optical sound track on a release print which is essentially a photographic rendering of the sound wave. A magnetic recording is invisible to the naked eye but similarly consists of continuous modulations of the sound wave. A digital recording, on the other hand, consists of a series of discreet values, each representing the amplitude of the sound wave at a given point in time and stored as numbers in a computer memory. Just as a very complex curve can be plotted on a graph as a series of points, so a sound wave can be recorded as a series of distinct numbers. The fidelity with which the sound wave can be reproduced is obviously a function of how close together in time the "points" are (i.e. the "sampling rate") and how many numbers there are to choose from when assigning a value to each sample (i.e. the byte size). The digital recording system used in ACCESS has a sampling rate of 50,000 times a second and a byte size of 12 bits. A 12 bit byte means that each sample of the sound can be assigned any whole number between 0 and 4,095.

Larry Neiman and an operator at the ACCESS controls in the studio at Neiman-Tillar Associates in Los Angeles. An editor at the console has instant access to over 250 hours of sound effects which are stored digitally in the computer and which can be auditioned and manipulated in sync with the picture on the large screen video system.





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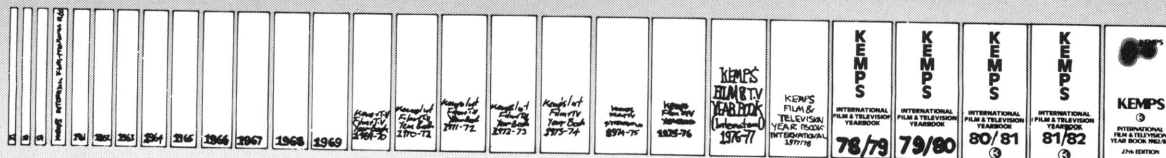
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The principal advantages of digital sound recording techniques are 1) the fact that the sound can be re-recorded any number of times without being subjected to the kind of degradation that inevitably occurs in analog re-recording and 2) the ease with which the sound can be manipulated by the computer. With ACCESS there is no signal to noise build-up. Explains Neiman: "We generate a sound digitally and are able to enhance its quality working it in digital form. No matter how many times an effect is played there is never any degeneration."

Operation ACCESS

ACCESS is an acronym for Automated Computer Controlled Editing Sound System... a computerized sound effects selection and editing machine using digitized sound data.

With more than 700 hours of sound effects available in Neiman-Tillar's libraries and 250 hours stored in digital form, the computer awaits the sound editor's commands. Utilizing the common tools and expertise of the sound editor, work is begun.

The 35mm production workprint and dialogue track can be converted to video cassette and time coded to give the editor a visual sync reference.

The sound effects supervisor (who might also be the sound editor on the picture) then begins detailing information on the plotter machine—an off-line system that accepts and stores his input on a floppy disc ready for the main line computer.

When the supervisor decides he needs a bird background starting at 12 ft. and running to 100 ft., he simply keys in his requirements on the plotter's SCT. The same goes for dialogue or Foley. All this detail is memorized as he cuts the show "dry" without having to listen to a single sound effects library at Neiman Tillar, and he selects the specific effect he wants to try at each point on the basis of the detailed description in the catalogue displayed on the screen. There has been some exploration of the possibility of modifying the system to permit the effect to be auditioned during the initial selection process, but it has not been felt that this was necessary yet because of the ease of substituting alternate effects during the next phase of the process.

Although the supervisor does not audition sounds at this point, he can be very precise about his requirements. At 30 ft. to 40 ft. he may want the sound of a passing car with the noise impact at 35



The ACCESS console at Reeves' Sound Shop in New York, the only other facility currently equipped with the system. The flatbed Moviola in the background can be synchronized with the system or a Videola can be used to make a film-to-tape transfer without creating a frame discrepancy problem.

ft. Provided he plots that information, the computer will oblige. (This footage will automatically be set when transferred to the main line computer.)

When the supervisor has completed a reel, the computer provides a plot sheet, automatically loads the start and stop times and pulls the desired sound effect. Armed with this "road map," the ACCESS editor can now audition the film at the on-line console with all the sound effects indicated by the supervisor and reflecting the director's views.

The ACCESS editor then begins exercising his creativity as he literally colors the picture with sound. He can cut from one effect to another in a fraction of a second, modifying or deleting as he goes. Each command is memorized by ACCESS and can be played back instantly, always in sync with the picture. If he does not like a particular effect, he can choose another in a 50,000th of a second.

If the plot sheet calls for a helicopter to take off and circle a building, the ACCESS editor can use a single effect and create a multitude of sound images, matching them to the movement of the helicopter on screen in front of him. Conventional editing methods would mean using at least three tracks or more.

There are basically four ways in which the editor can manipulate the sound effect as he auditions it in sync with the picture. He can edit it or extend it. He can alter the pitch. He can re-equalize it. And he can alter the volume. More importantly he can do all of these things at once and the computer will memorize exactly what he did so that it can automatically repeat it.

Extending an effect is accomplished simply by having the computer reproduce the same effect over and over again. Since the time required by the computer to find the beginning of an effect and start playing it is always less than 55 milliseconds (and usually more like 6 milliseconds), it can produce a seamless loop with any of the effects stored in the system. With the helicopter, for example, a three second constant sound can provide the raw material for an entire sequence in which the helicopter starts up, takes off, flies around, and then lands again.

Since the computer can jump from any one place in its memory to any other virtually instantaneously, editing can be performed on a selected effect by telling it precisely which pieces to use. Generally this would be a matter of trimming one end or the other off or selecting pieces to use from within the sound. A piece can be selected by hitting a key on the keyboard during the auditioning of the effect at the beginning and end of the piece. Trims or internal cuts can then be made normally in increments of .17 seconds although with dialogue editing the system is designed to work in increments of a quarter of a video frame or 1/120th of a second. There is also a key which will make "large cuts" of 3.6 seconds each.

In addition to the instantaneous access and editing perhaps the most impressive feature of the system is its ability to alter the pitch of the effect by varying the rate at which the digital data is fed to the digital to analog converter. (While the sound effects are stored and edited digitally, they must be converted to analog signals in order to be audi-

tioned or recorded on magnetic tape.) The effect of varying the rate at which the data is fed into the converter is essentially the same as the effect of varying the speed of a tape recorder except that there are never any problems with wow or flutter in the ACCESS system. The pitch can be raised as much as two octaves or lowered as much as one. The editor controls this function with a slide pot which is tracked by the computer so that the computer can always repeat precisely any gradual transition or slight adjustment. The effect of a helicopter starting up and taking off is very convincingly created from a constant sound largely by means of this control.

Re-equalization is accomplished by a six pot equalizer with swirl type controls which are also tracked by the computer. This and the volume control are conventional analog processing of the signals after they have been converted from digital to analog.

It will take an ACCESS editor about 12 hours to complete a reel which would ordinarily mean a week's work for a sound effects editor using the traditional moviola system.

When all the effects and modifications meet with his satisfaction, the ACCESS editor instructs the computer to print out cue sheets ready for dubbing and build the cut sounds into the proper sound units, whether they be effects, dialogue, Foley or music.

Meantime, the sound department will load 16mm or 35mm (in the case of video tape, ½ inch, ¾ inch, one or two inch) transports with magnetic stock for film or video and the computer will lay off sounds into the appropriate units.

The computer actually turns on and off any recorder, firing it exactly on frame. There is no bias between any of the sound effects. Each reel is transferred precisely as programmed and in perfect sync.

Neiman-Tillar Associates are well equipped to handle dubbing of both film and video shows in their multi-media mixing room utilizing a 32-channel compu-mix board, multi-track machines, interlocked to sprocket machines and, of course, ACCESS.

By plugging into ACCESS direct from the stage, a replacement effect can be previewed and incorporated into the mix within minutes without bringing the dubbing process to a standstill.

Once the work is completed, ACCESS can maintain a record of a show and will re-create the sound track at any future date, cutting out the need for costly storage of effects units and deterioration through shrinkage and dust.

Reaction to ACCESS

The only ACCESS system working outside Neiman—Tillar Associates' headquarters in Los Angeles is the one developed by them for Reeves' Sound Shop in New York.

Reeves' video sound engineer in charge of the system, Norman Kasow, reports: "It is the fastest and most versatile method available for creating rich, detailed sound effects and editing them into a sound track.

"Not only does it cut down the working time, it allows more time for the creative aspect of the business. It gives us the freedom to do almost anything with sound."

Kasow estimates that ACCESS saves up to 40 percent of the time usually required for sound effects post production.

Larry Neiman recalls the first TV series cut by their first ACCESS editor, Colin Mouat: "It was Universal's 'Baa Baa Black Sheep' and called for a variety of World War II fighter plane sounds. Using Universal's own library effects, we loaded the computer and Mouat began applying his creativity to the picture.

"You can imagine my surprise when an irate-sounding producer called to ask where we had gotten the effects. Before I could explain anything, he admitted they were sensational.

"He had not realized they were the same sound effects that had been established in previous episodes by editors cutting on moviolas."

ACCESS and sound editors

The machinery is not complicated. Anyone with sound editing experience can learn to operate ACCESS within two weeks, although the terminology may take a little longer.

With a vast library of effects at his fingertips, an editor can produce an infinite range of sounds. Just one example is the droning noise inside a car going at speed. Using his imagination and the incredible capability of ACCESS, the editor can create an effect which sounds like the rumble of Mt. St. Helens erupting or a bomb exploding.

Neiman-Tillar frequently have to remove modern sounds from production tracks. Says Larry Neiman: "It is far easier re-creating the ambience of the visual using ACCESS. Faced with similar tasks on a moviola, an editor would have to spend hours researching and auditioning effects in a sound library while trying to remember the picture in his mind's eye.

"Our ACCESS editor is able to try all kinds of effects while viewing the picture—and in dead sync. He can discard effects which do not work and instantly replace them with those which he considers more suitable.

"Editing by ACCESS allows limitless creativity. There are no moviolas, splicers, rewinds, synchronizers, etc., and more importantly, no magnetic film or tape—just a machine that works as fast as the person at the controls.

"Before ACCESS, all a sound editor could do to a piece of magnetic tape was scrape it, wipe it, splice it or throw it away and get another piece. Now he uses digital techniques to modify the sound to fit the picture."

ACCESS is well suited to the needs of video productions. "We can provide the same top quality sound and creative finessing for video and film. Most video companies are more concerned with the visual than audio and have only sweetening facilities," says Neiman. "We can improve on original sound tracks with ACCESS and even add Foley as we did for the Baryshnikov TV special earlier this year."

The future of sound

"With the recent completion of System C (which allows dialogue to be edited, cleaned and filled through digital techniques) ACCESS has become a basic sound editing tool for the industry, capable of all the editing functions the way we intended," says Larry Neiman.

"Ultimately we will make full use of our new technology by converting analog sound to digital form and transmitting everything directly to the mixing stage."

Neiman considers that sound for TV is still at the infant stage: "All the great strides in technology have concentrated on the visual aspects and optical effects with computers and tracking techniques.

"It seems the industry has failed to take advantage of sound developments that are available.

"Just as stereo replaced the old mono phonograph, audiences have begun to demand more from the dazzling world of video.

"We have waited a long time for high definition video pictures. How much longer must we wait for better quality sound when in truth it's here?"

Neiman-Tillar Associates have certainly played their part in taking the industry through a major sound barrier with ACCESS, the system that is now available to companies worldwide.

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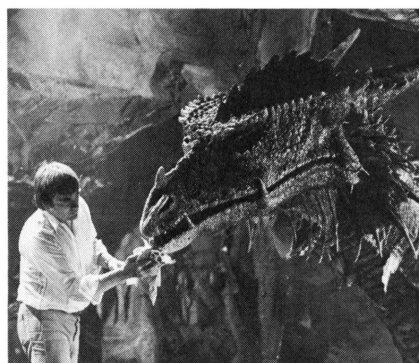
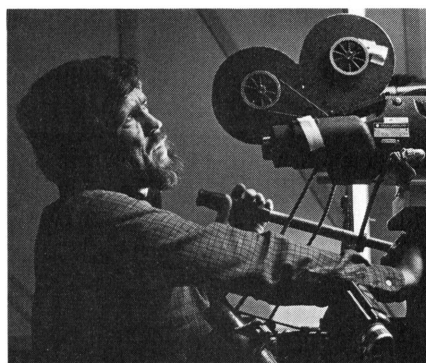
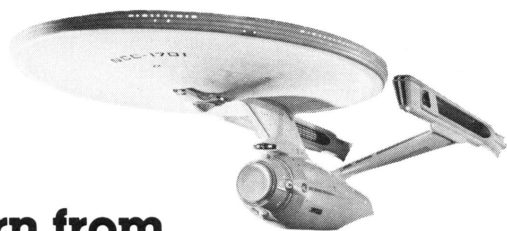
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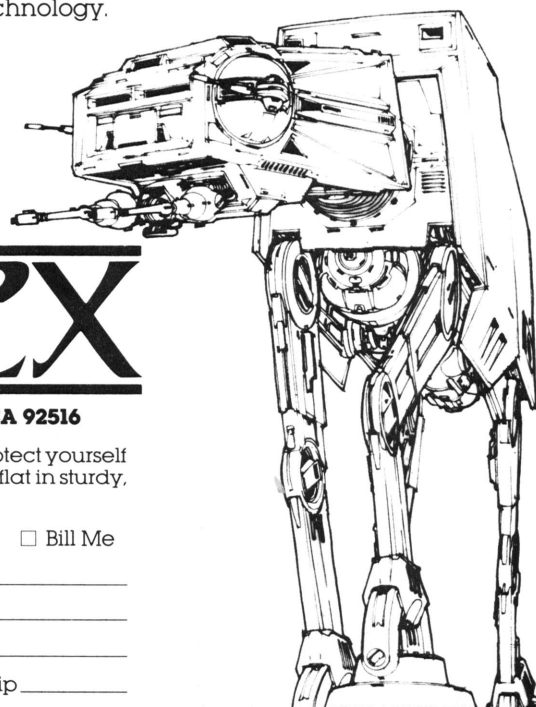
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By **GEORGE E. TURNER**

Conspicuous among the big sound stages on the Universal Studio front lot is Stage 28. It is obviously older than the others, betrayed by its pitched roof, corrugated iron covering and the ravages of time. It has almost a haunted look, as well it should, for inside stands the last large remnant of Hollywood's version of the Paris Opera House and its fabled ghost. Old 28 is the Phantom Stage, built 58 years ago for that legendary thriller, **THE PHANTOM OF THE OPERA**.

Its origins lie in a trip Carl Laemmle, president of Universal, made to Paris in 1922. He was as awe-struck as any tourist when he stood before the Place de l'Opera in the Boulevard des Italiens. Built by an imperial decree of Napoleon III, it took 12 years to complete, opening in 1874. In size and lavishness it dwarfs the opera houses of Vienna, St. Petersburg, Munich and Turin.

While in Paris Laemmle met Gaston Leroux, who, intrigued by tales of the "opera ghost" wrote a novel, "The Phantom of the Opera," in 1907. He gave Laemmle a copy of the book, and the little movie mogul spent the night

reading it. Next day he pondered the idea of filming it, but balked at the thought of sending a cast and crew to Paris. Later, he cabled his studio manager, telling him to begin planning to

build a replica of the Opera House on the lot.

The story, set in 1880, is of a disfigured genius known only as Erik, who lives in the cellars beneath the Opera



Carl Laemmle, in light suit, visiting the Paris Opera House, 1922.

House. He falls in love with Christine, a young singer, and, keeping his face hidden behind a mask, trains her to be the prima donna. He launches a reign of terror in her behalf and eventually lures her to his subterranean home. When she unmasks him, he threatens to destroy the Opera House. Her sweetheart and a secret police operative rescue Christine while the Phantom at last is slain by an irate mob.

Already a large section of old Paris was being built at the studio for **THE HUNCHBACK OF NOTRE DAME**, completed in 1923. Laemmle rightly believed that **HUNCHBACK** would be a great success and that its star, Lon Chaney, would become a leading box-office attraction as a result. The picture's release the following year brought Universal greater prestige than any other picture in its history. Chaney's personal success was so great that he was lured away from Universal, where he had labored for years, by a lucrative offer from MGM, where he remained under contract until his death in 1930.

Laemmle felt certain that only Chaney could play Erik properly. Mary Philbin was cast as Christine and Norman Kerry as her lover. As the sets



From the Bal Masque sequence, filmed in Technicolor. Gibson Gowland, Norman Kerry and Mary Philbin are the central figures. A few components of this set of the Opera House foyer remain in the prop department at Universal City. 1924.

neared completion in 1924, Universal began negotiations to borrow Chaney from MGM.

The main set, of which the auditorium takes up approximately the west quarter, was the first ever constructed on a structural steel framework set in concrete foundations. The customary wooden structure was deemed unsafe because the main floor, the five

tiers of boxes and balconies that surround it, and the stage would be filled with players. It is the auditorium portion which remains on what is now Stage 28. Llewellyn Steel Co. of Los Angeles set up the skeleton. The outside was covered with wood and reinforced, corrugated iron. Trucks bearing building materials to the studio were bannered, "The largest shipment of lumber

The auditorium set which still stands on Stage 28. This ballet scene also was photographed in Technicolor.



in the history of Los Angeles."

The stage was 360 feet long and 145 feet wide (there have been some additions since). A tank for filming water scenes was constructed under the floor, which can be taken up in sections. The backstage area contained the mechanical effects equipment necessary for the operation of a real opera stage as well as props, such as the dragon from "Siegfried," used in familiar operas. Eleven sculptors and scenic artists worked for six weeks to complete the decorations. A huge crystal chandelier was made in the property department and hung from a pulley in the rafters, about 60 feet above the floor.

Other portions of the Opera House were built in the vast area beyond the auditorium stage and in other locations on the lot. Charles D. Hall designed most of the sets and Archie Hall was in charge of construction. Bart Carre designed the subterranean areas, which were tunneled into a hillside. Tanks higher up the hill furnished the water for scenes in which the cellars were flooded. The roof, including the great statue of Apollo at its center, was built full scale, the background of Paris by night being added by a glass painting placed in front of the camera. The huge staircase and foyer, the Phantom's torture chamber and underground home, the dressing rooms and offices all were elaborately mounted.

Louis B. Mayer, president of MGM, was not fond of Laemmle and at first refused to loan Chaney. Irving Thalberg, formerly assistant to Laemmle and now Mayer's associate, convinced him that the picture would boost Chaney's popularity to MGM's ultimate advantage—an accurate prophecy. So it was that Chaney returned for the last time to his former studio, now at a much higher salary, to make what became his most celebrated picture. His contract included a clause that no photos of his makeup could be shown until after the picture went into release. The skull-like makeup, as always, created by Chaney himself, became immortal.

Production, which began in the Fall of 1924, did not proceed smoothly.

(TOP) The fall of the great chandelier, which actually was lowered from a pulley. (CENTER) Lon Chaney as the Phantom in the catacombs beneath the Opera House. (BOTTOM) A scene from *THE LAST WARNING* (1929), a murder mystery set in a "haunted" Broadway theater.

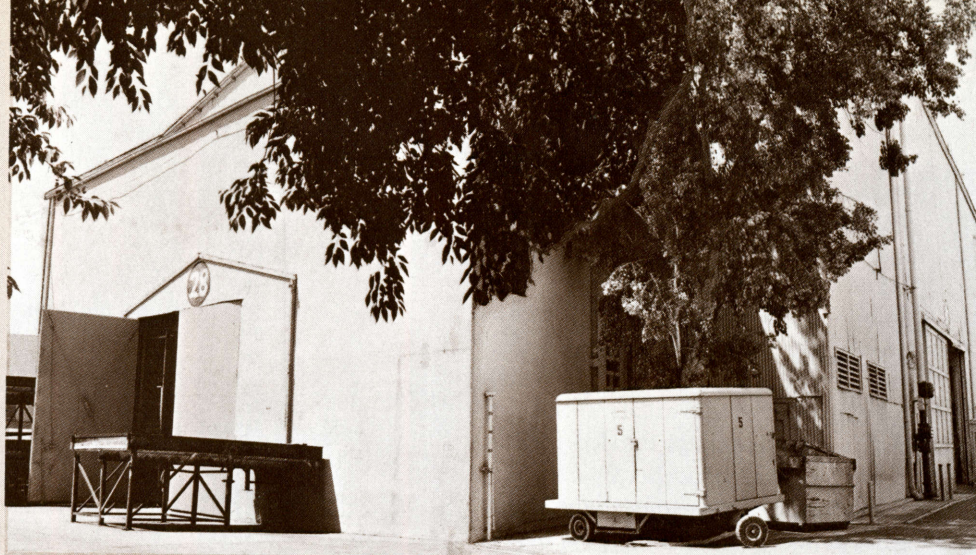


Chaney, although loyal to his friends, was a hard-boiled, exacting man. So was the director, Rupert Julian, who as an actor had been Erich Von Stroheim's nearest rival at portraying brutal Prussian officers. The director soon was embroiled in conflicts with Chaney and the supervisor, Bernard McConville. Mrs. Julian joined the fray, complicating matters further. The cameramen acted as liaison between Julian and Chaney much of the time.

Charles Van Enger, ASC, and Virgil Miller, ASC, were the principal cinematographers, with additional unit work by Stephen Norton, ASC. Van Enger was in charge of overall production photography while Miller, who had good rapport with Chaney on previous films, did most of the scenes in which the Phantom appears.

"I'd worked with Lon for years experimenting with one makeup after another," Miller said shortly before his death in 1974. "It was a challenge because he set me an almost impossible goal. He'd say, 'Virg, make me look frightening and repulsive, but at the same time make the audience love me.' He always wanted to be loved. I felt I really succeeded in *THE PHANTOM*."

In one famous scene the great chandelier falls into the audience, killing and injuring many spectators. This was done by lowering the chandelier slowly on a rope and undercranking the cam-



Stage 28, the Phantom Stage, as it appears today.

era so that when projected the chandelier appears to hurtle down with horrifying speed. Unfortunately, the fall itself is missing from most prints existing today, which derive from a version in which the scene was shortened by order of the New York censor.

The ballet which opens the film, some operatic scenes, and a sequence of the Grand Masque Ball were filmed in Technicolor by Van Enger under the supervision of Edward Estabrook. The opera and ballet scenes are rather weak, but the Masque is a triumph of color photography. Technicolor at that time was a two-color process. Prisms separated the image taken by a single lens to

red and green filters. Reds and oranges were recorded on one black-and-white film, greens on another. In processing, the separate images were printed on very thin strips of film. The red-filtered pictures were floated on a green dye and the green-filtered pictures were dyed red. Cemented together, the strips yielded a surprising range of colors and good flesh tones. The film was slower than normal emulsions and required a drastic increase in lighting on the large sets.

After some 10 weeks of work, Julian was replaced by Edward Sedgwick, normally a comedy specialist, who directed the mob and chase sequences

Trilby (Marian Marsh) sings and Svengali (John Barrymore) conducts in *SVENGALI* (1931), for which Warner Bros. borrowed Stage 28.



that climax the picture. Several previews were held in January, after which Sedgwick was brought back to film further sequences photographed by Milton Bridenbecker. After the official premiere, at the Curran in San Francisco on April 26, 1925, the picture was recalled and new comedy material was added featuring Chester Conklin. Eventually, all the added work other than the chase was scrapped.

Professor Gustav Hinrichs, 75-year-old German-born conductor formerly associated with the Metropolitan Opera, was engaged to arrange the musical accompaniment. It was scored for a 45-piece orchestra for the initial large city playdates and for smaller pit ensembles and keyboard solos for the subsequent runs. Most of the music was adapted from Gounod's "Faust," the work being performed on stage during much of the film.

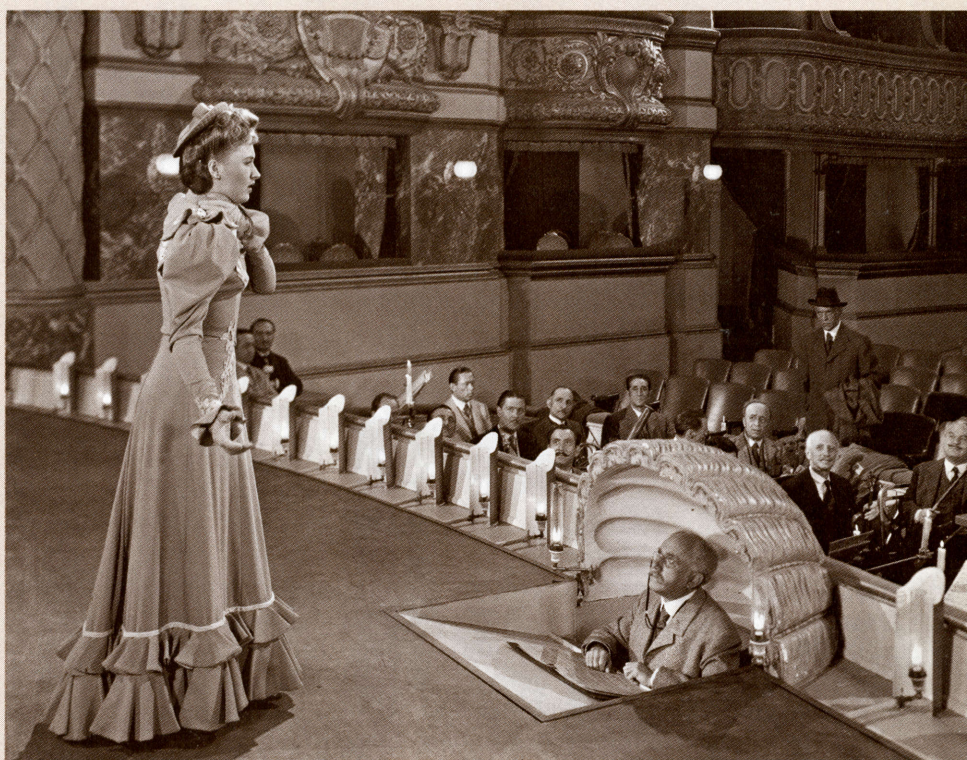
Most of the sets were dismantled and distributed to wall storage and the property departments. The auditorium, however, remained intact. Laemmle considered it a permanent asset to be used as often as practical.

It would be futile to attempt to list here all of the hundreds of pictures made on the Phantom Stage. Many have utilized the space only, with the distinctive features of the Opera House not visible. Following are a few notable films in which the set played a crucial part, and, in several instances, made the film's production possible.

The Paris Opera became the Imperial Russian Ballet Theater in *THE MIDNIGHT SUN* (1926), a romantic extravaganza set in pre-Revolutionary Russia. A leading European director, Dimitri Buchowetski, staged some fantasy ballet sequences in which the costuming and settings were marvelous. Some of these appeared as stock footage 11 years later in *FLASH GORDON*. Laura LaPlante and Pat O'Malley were the stars and the cinematographers were Jackson Rose, ASC, and Ernest Smith.

Continued on Page 733

(TOP) Nelson Eddy and ensemble perform "Le Prince de Caucasic" on the newly decorated stage in the 1943 version of *PHANTOM*. (CENTER) Susanna Foster, Ludwig Stossel and Boris Karloff on the Phantom Stage as refurbished for *THE CLIMAX* (1944). (BELOW) Paul Newman and Julie Andrews attend the ballet in Alfred Hitchcock's *TORN CURTAIN* (1966).



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A.F.I. SEMINAR WITH RICHARD H. KLINE, ASC

An important part of the American Film Institute's training program is a continuing series of seminars featuring experts in the various arts and crafts of motion picture production. These top professionals donate their time and expertise to these meetings, which are held at the AFI's Center for Advanced Film Studies in Hollywood.

The seminars dealing with cinematography are sponsored by Camera-men's Local 659 (IATSE) and are moderated by "Emmy" award-winning Director of Photography Howard Schwartz, ASC. The sessions are informal, with questions invited from the audience.

The following dialogue is excerpted from the AFI seminar of February 6, 1982, with Richard H. Kline, ASC. It was preceded by a screening of *BODY HEAT*, a recent release for which Kline's cinematography has received wide acclaim.

HOWARD SCHWARTZ: It's been a long time since we were assistants together. He started in television on a series at MGM, *MR. NOVAK*. Was *CHAMBER OF HORRORS* your first picture?

RICHARD KLINE: That'd be the first feature.

HS: Right. *CHAMBER OF HORRORS*, *CAMELOT*, Warner Seven Arts, '67; *HANG 'EM HIGH*, *THE BOSTON STRANGLER*, *A DREAM OF KINGS*, *GAILY, GAILY*—that was a beautifully photographed picture. It was done in Chicago, a lot of it. *THE MOONSHINE WAR*, *ANDROMEDA STRAIN*, *KOTCH*, *HAMMERSMITH IS OUT*, *WHEN THE LEGENDS DIE*, *THE MECHANIC*, *BLACK GUN*, *SOYLENT GREEN*, *THE HARRAD EXPERIMENT*, *BATTLE FOR THE PLANET OF THE APES*, *THE DON IS DEAD*, *TERMINAL MAN*, *MR. MAJESTYK*, *MANDINGO*, *WON TON TON*, *THE DOG WHO SAVED HOLLYWOOD*...

RK: He didn't quite succeed, I'll tell you that. Nor did the film.

HS:...*KING KONG*, *THE FURY*, *WHO'LL STOP THE RAIN*, *TILT*, *FIRE POWER*,

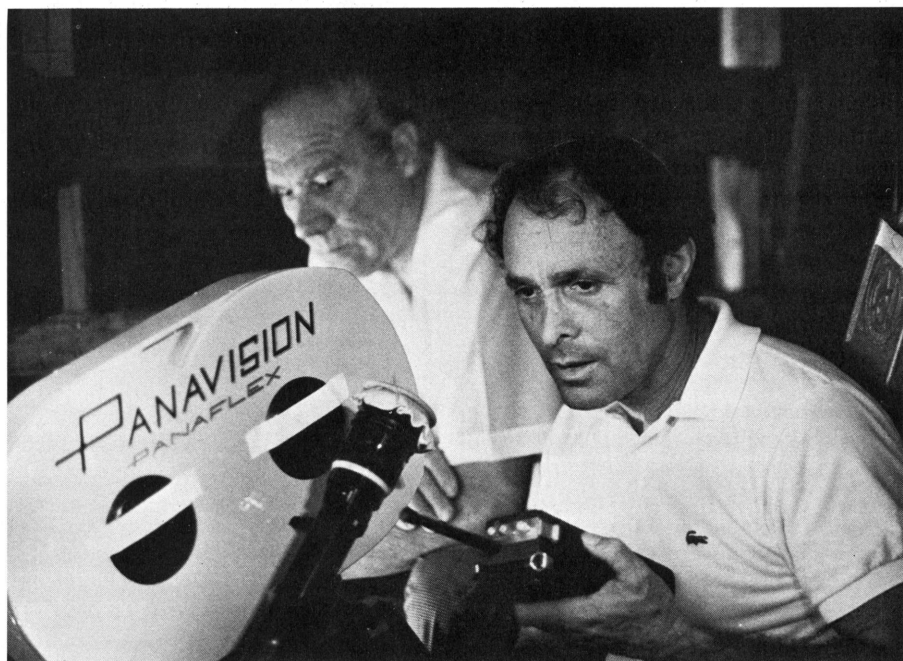
STAR TREK, *THE MOTION PICTURE*, *TOUCHED BY LOVE*, *THE COMPETITION*—which was a gorgeous show. *BODY HEAT*, which you just saw. I guess you must have had a really good idea of where you were going on this, Dick, because each sequence was quite different. You had the cafe where they first met. You played that in an entirely different style than anywhere else, with the windows blaring, and each scene had a terrific style of its own. How did you go about planning the way you were going to shoot the picture?

RK: Well, as you know, I don't work alone in a film, it's a cooperative effort with the director and art director, costume designer; it's not just a solo effort by a cinematographer. And this happens to be a film that was beautifully planned by Larry Kasdan and his associates. I executed it perhaps, but this was one of the most cohesive units I've ever worked with. Quite often you'll be on a project where—I hate to say it—where one element might be someplace else, not on the same wavelength. But in this case I must say the thinking was all in one

direction, and that was Larry Kasdan, who very carefully placed everyone on that film. I think that's the reason for its successful look.

HS: Did you guys have pretty thorough discussions before the picture as to the different style, the different look you wanted in different scenes, or was that more your concept from what you gathered from his general discussions?

RK: By and large, Larry knew what he wanted. Even though it was his first directorial assignment, he's a very knowledgeable filmmaker. I swear, in his last life he must have been a director. He didn't quite know how to articulate it, but he knew what he wanted. And we just felt that at the right moment his desires would come out, or he'd be able to illustrate them either vocally or through something. But also his flexibility on the set was very well appreciated and, I think worked for him, because quite often some directors have preconceived ideas when they go. Some can even match sketches that were done months prior to filming, and use that as a guide or a security blanket or whatever



Richard Kline at work. The man in the background is another cinematographer, Harold E. Wellman, ASC.

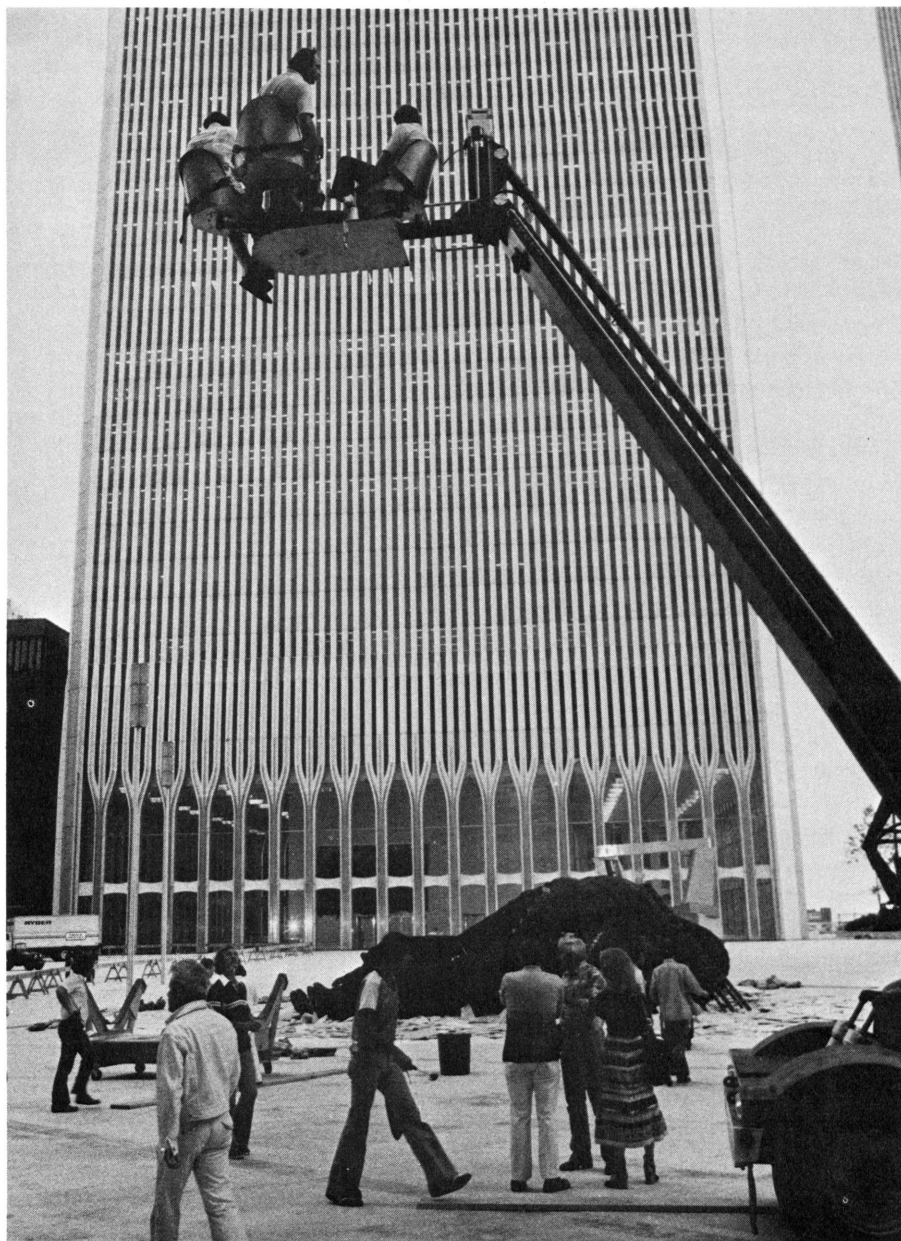
you want to call it. Some are successful at it and some really fail. And I believe in the flexible method of having a direction to pursue, but not live or die by it. Things happen on the set. For example, we would clear the set and have a complete rehearsal with the actors and just a few key people. The purpose of that is to not intimidate the actor. Naturally, the context of this film required a lot of privacy. In fact, to break the ice the very first sequence we filmed was the love scene in the boat house, and that's really a way to get to know one another. The crew didn't know the two actors, Bill Hurt and Kathleen Turner. So we—myself and the director and the script supervisor—rehearsed the scene in there alone. Then we sent the actors out to prepare. And I lit it with the crew, then the crew left. And Kathleen Turner and Bill Hurt returned and they stood at the doorway of that boathouse totally nude and, as if it were a reception for a wedding, we walked in single file and shook hands and introduced ourselves. I mean, the whole crew did. How do you do...and they were standing there stark naked. And that really broke the ice. From that point on there was just no second thoughts that, nude or dressed, that's the way the scene had to be and there were no lascivious looks.

HS: One of the things I wanted to ask you about were the main titles, which I thought were really interesting. First time I saw it I thought maybe it was bodies. And then this time, curtains. And maybe curtains and bodies. How was that done?

RK: I did not do the titles. That was done by a PR group. And I think the titles were also used as the trailer, which was very evocative. You didn't quite know what it was. I think they did a magnificent job. That's the only part I did not film.

HS: In most of your night sequences, did you print the blue in? Or, did you use the blues on the lights?

RK: Combination. I did use some half blue, and then print the additional blue in. I have a way of working I can't do with all labs, but MGM does permit me to do it, and I mix the lights myself. I establish the CMY which they work with, the cyan-magenta-yellow, and I mix it as we go along so that in a long shot, I might want to put more blue than in a closeup, because of the face. I don't think the face should be too cool or too blue. It should be cool but not blue. So I will delete some blue out of it and I will mark on the



Kline likes the Chapman Crane. He rode high on this one to film a spectacular scene in KING KONG.

report two points lighter or whatever—I'll just put the numbers down.

HS: Did you work fairly wide open on that stuff?

RK: I would say.

HS: And maybe force the stop on some of it?

RK: Rarely forced. I don't think there were more than five minutes of forced film in the film.

HS: And you had a couple of fog sequences that were interesting. That's a problem, isn't it, keeping your fog balance for your shots?

RK: It's always a problem, particularly outside with the wind currents and just the elements in the air. It's very hard also to maintain a consistency when you go from long shot to the closeups.

Question: This first sequence in the coffee shop where those three guys meet, shooting against this window, now that's one situation where I would like you to talk about taking, in a sense, a calculated risk because of something you cannot measure with a light meter, how much it will blur into highlights into shadows. Is it just your experience or is it a way you can predict how much this blooming will happen?

RK: It is experience to evaluate how



BODY HEAT, with Kathleen Turner and William Hurt, maintained a torrid atmosphere whatever the actual shooting conditions.

much it will happen. And it can throw you, because it's contingent on what filters you have also in the camera, if they're low contrast or fog. And it's just the desired effect that you're going for too, how much you want to see out there. So it's a matter of judgment. You can't read it with a meter at all. But that's photography in itself: judgment. My personal feeling is you can go crazy reading a meter and get any kind of a reading you want. But it's an overall balance that really counts, and I think particularly in a case of a window blossoming.

HS: What stop were you working at? Maybe 3.2, 3.5? Or did you go heavier than that?

RK: That was quite a bit heavier... I think that's closer to 4.5, 5.6, as I recall.

HS: It looked like it was blossoming so much I thought maybe you were, you know, even lower than... Normally I'd say 4.5 or something like that.

RK: Yeah, but also you use the scale, too, the printing scale, to help that blossoming. First of all, the more you stop down the less blossoming you're going to have. So you want to control it, you would do it through exposure, too, and print at a different range.

Q: In the night exteriors, when people would walk into the light. I noticed they

had like kisses of light all throughout there. They were evenly lit. How did you achieve that, the placement of the lights?

RK: Well, by placing, obviously, behind trees or objects. And quite often I'll walk a light if the camera is moving and the actor is moving, as an example, and say it's a 180 degree pan. In an open area such as the grassy area, you just can't hide lights. So we walk a light. And working at low light levels a man can carry an inky dink or a (Do you call them inky dinks? Each studio has a different name for them).

HS: Midget or an inky dink.

RK: ...or a 1K 1000-watt lamp. And you can walk it and just float back and forth. That way it stays consistent.

Q: I was just wondering about the highlights on the clothing.

RK: It's good to make somebody just stand out a bit. It's like if you were drawing a picture, I think you would put that same highlight or something similar.

Q: Were a lot of the interiors done at Zoetrope Studios? The bathroom and such?

RK: Only his apartment. The house, the Walker mansion, was all done in Florida

on a live location. But his apartment and one other little set, his office. Those two sets were done here, as I recall. Nothing else.

Q: What were you using filterwise?

RK: Well, it would vary. It always had a filter. Either it would be an LC 1 or 2 or 3, or a fog filter. I personally like the Tiffen fog filter. And that would also be a variation of 1, 2 or 3. It wasn't really overly heavy. A lot of this came through, I think the flaring or the softness came through exposure and lack of stop as opposed to heavy filtration.

Q: Could you talk about, in your preparation, about the look. Obviously it's a hot summer. People are sweaty. When you saw the script and started to think about how you want the film to look, what first came to your mind and how did it carry throughout the film?

RK: Well, as an example, it wasn't sunny every day in Florida. We had terrible weather there. So the way to create this warm feeling was through filters, the color value on the light. I sometimes added a gel if I could, or did it in the printing. And they were continually being sprayed and it was very cold. As an example, there's a night sequence where they're on the pier. That was freezing cold. I was in my heaviest jacket and they were being sprayed down. He was in his skivvies, as I recall. I don't know how they braved it, but they did. A remarkable bit of avoiding goose pimples.

Q: Could you go on a little bit more about gelling the lights and that sort of thing? The restaurant just looked hot as hell. Sweaty. Really you kind of created that whole atmosphere.

RK: Well, the word create was there. I know a lot of times smoke is used in these, in bars particularly, and is quite effective. But I opted not to use smoke. Only fog, which was a kind of smoke. In the cafe I did, yes, because there was cooking going on and there was a reason for steam and smoke.

Q: Richard you mention that sometimes to add to your colors, you put a half gel on it, and sometimes you would add some in the lab. How do you determine how much color you're gonna add on the set and how much you're gonna add in the lab later on?

RK: Well, it's easy to say experience, but



The elaborate **GAILY, GAILY** presented many challenges to the cinematographer.

each film is a new experience, and prior to the formal production I shoot tests, just my own technical tests, and I evaluate then just how much. I'll put a filter on the light. I usually know which filter to put on, but you never know. Things change or the batch of color that this filter came from might be a little different. It could be a different lab. Maybe if it were the same lab they might have changed some of their gamma. There's always some kind of variation. So I would test it and then various stages of applying more blue or less blue if I want it to go blue. Or, in a case of warming up a scene I would use yellow or red combinations. I have all this in my mind prior to the filming. And then I would, like a surgeon, know which tools I have to work with and apply them at the right moment. The assistant cameraman has to keep a very detailed report. Labs work under a tremendous handicap. If you give them the privilege of timing a scene, they're guessing really, unless you're there to tell them every degree of look that you're after. They're a little bit jaded, also. They see thousands of feet of film a day, and at the worst hours. They work like milkmen or night taxi drivers. So that's why I've opted to do the mixing of the lights myself, once I've established them. But I shift them. Each cut might be different, might not be the same light. But I have what I call a normal. As an example, 30-32-31, which would be the cyan-magenta-yellow combination. I might take a point of yellow

out on one, on a closeup. Or add a point of yellow for the blue, or alter the blue. And having made my test prior to the film, I would know exactly what to do. And also, each lens... they're not perfectly matched. We try to match them as best we can when we select a camera for a film, but some are cooler, some are warmer. I evaluate that prior to the filming. I test each lens separately. And so I know that a certain, 75 mm lens might be a little cooler, so I'll add a little warmth to it, like a yellow. A point of yellow might just even out everything. That's how I play with the lights—I should say the printer lights—and try to keep total control of the color.

HS: How often did you get to see rushes in Florida? Did they ship 'em back there, or...

RK: Yes they did. We'd see them three days later, three to four days later—which is after the horse is out of the barn—but I had daily contact with the lab. You have to keep the lab honest, let them know that you are watching and that you are very careful, or else they might get sloppy. They have a thankless job in many respects. I call them every single day. Just a brief conversation. They know what I'm looking for. As an example, technically, there could be a scratch, something that you'd want to shoot right away and not wait four days later to find out. Or there could be an out of focus shot; not only just the photogra-

phy, but there are other aspects they they could comment on that could be helpful to a film.

Q: There's a long shot the first time he meets Mattie at an outdoor amphitheater, in an outdoor concert. And the audience is lit very, very warm. And then she comes from that into a cooler lighting and John Hurt is in the foreground and he's also lit very warm. There's a moving in and out of that cool light and very warm light with cool kicks on him. How much of that is done in the printing of it and how much is done in the shooting of it?

RK: That was a challenge scene, the reason being there was a 50-mile an hour wind blowing. Seriously. And we had to finish. We were behind schedule and losing... well, it's the economics of film-making. We had to. So, a clever production unit brought in about twenty or twenty-five large trailers, and lined them up and almost stacked them—it was an amazing thing—for a windbreak. Took half the night to do it. All of a sudden the wind came up and it hit 50 miles an hour, like a gale. I don't know if you noticed a lot of hair blowing, but we were holding up boards and 5-ply and whatnot. So I was very handicapped as far as lighting was concerned because it was blowing all over the place. And I had to use large units there, which I prefer not using. Like one large unit to light and then some little highlights. And it was very difficult to put gels on the lights because of the blowing. The lab did a lot of that for me. That was a very difficult sequence. It didn't show it though. You'd never know.

Q: Were there blue lights... blue gels on certain lights and warm gels on other lights?

RK: There was an arcade behind them. In the arcade I had normal incandescent light and possibly some of them had a very slight yellow gel, because they were protected from the wind and I didn't have to worry about it. But for the overall light I think I put one gel on that, a very light half blue. Lee blue is what I generally use. Rosco makes the same thing. So I used very few gels on that and did use the lab to mix the color.

Q: There were two scenes that really drew me into the film. One was the long pan up the staircase when he first goes into her house and they walk up to where it fades almost to where you can't see them at all and then they come back

Continued on Page 709

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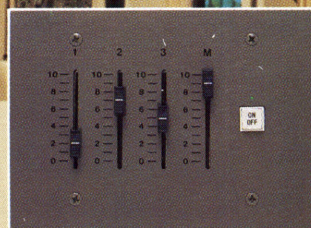
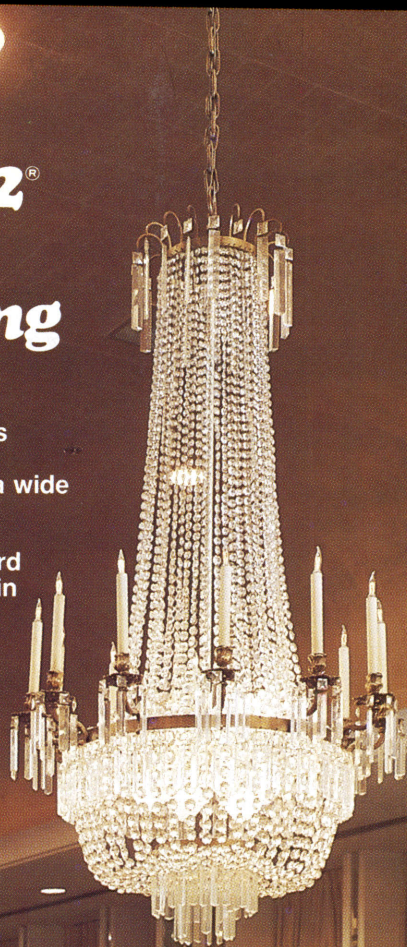
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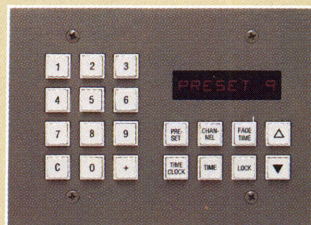
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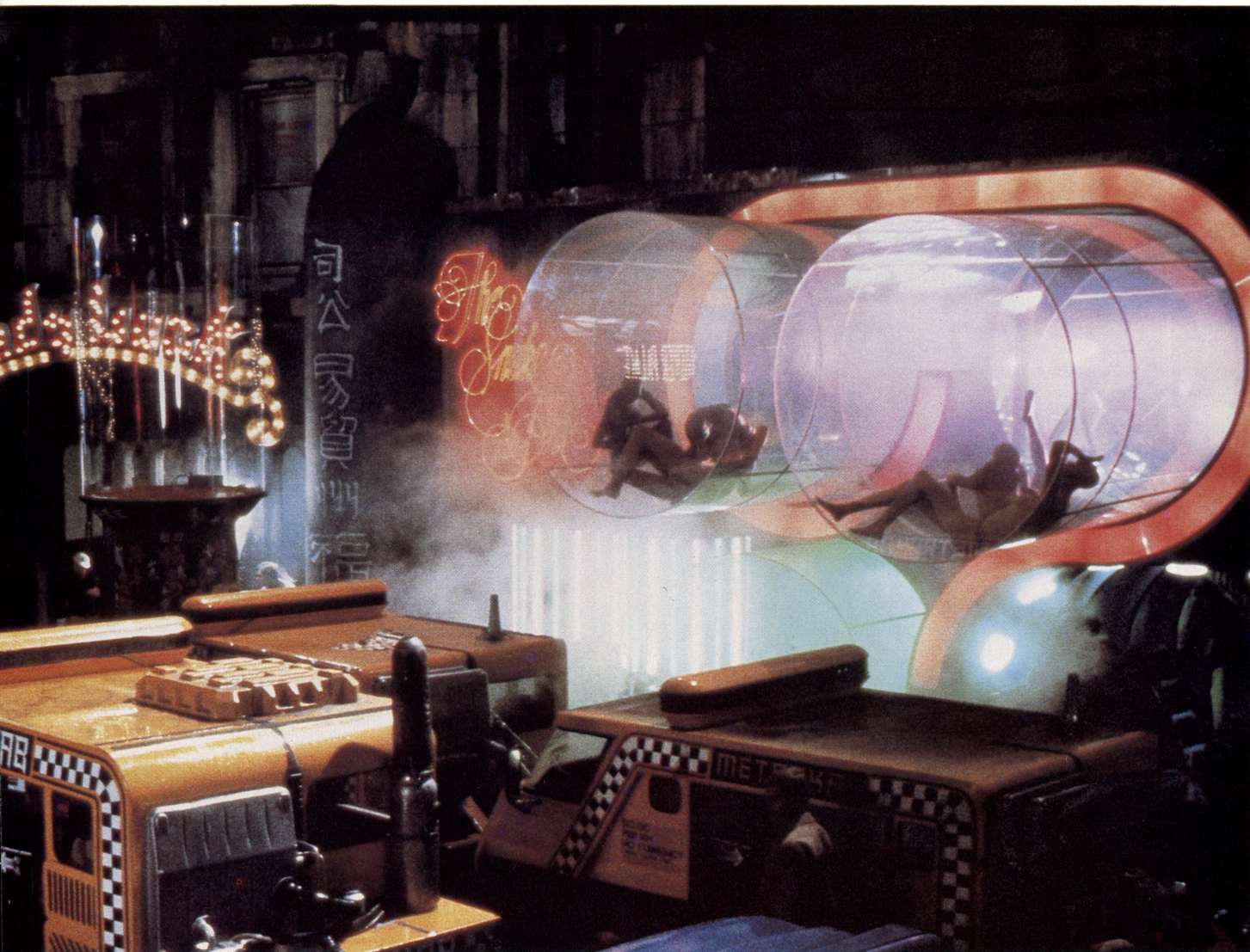
By HERB A. LIGHTMAN & RICHARD PATTERSON

Director of photography Jordan Cronenweth's favorite close-up in **BLADE RUNNER** is this shot of Rachael (Sean Young) during the Voight Kampff interview in Tyrell's office.



"Films usually attempt to do the future by presenting a rather bleak, pristine, austere, clean look. It could go that way, but I've got a feeling it's going to go the other way." Ridley Scott is discussing his approach in directing **BLADE RUNNER**, a detective thriller set forty or fifty years in the future. "Think of Chicago or New York City right now, the over-saturation, how impossible it is to maintain some of these buildings. Think how expensive it's going to be to take down the Empire State Building. It will cost as much as building it. Eventually, you'll just have to 'retrofit' things on the face of the building rather than having to pull half the side off, re-house the air conditioning or re-wire it. The cost will get so high it's going to be simpler just to smack things on the outside. So maybe buildings will start to be designed from the inside out. You wear your guts on the outside. That gives us a picture of a textured city."

Syd Mead, an industrial designer who was the "visual futurist" for **BLADE**



(ABOVE) The New York Street set at The Burbank Studios used in numerous classic Bogart or Cagney movies was redressed to represent Los Angeles in the year 2021. Neon signs both on and off camera provided the general illumination for night exteriors on the street. (BELOW) Shafts of light created by strong cross or backlight through smoke are a major photographic motif in *BLADE RUNNER*.

RUNNER, describes the sociological assumptions behind the production design: "The consumer delivery system has sort of broken down. The available capital is all going to research and development and the consumer base is being neglected." The story for *BLADE RUNNER* is based on the idea that overpopulation has forced millions of people to migrate to "off-world" colonies, and that genetically engineered human "replicants" are used as laborers in "off-world" military industrial or mining operations. The result is that the urban environment on earth is a strange mixture of new technology and old elements adapted to the new conditions. As Mead puts it: "Ridley wanted things to look like they had to be jacked up a little bit to work at all—a panel refitted here, a larger unit clapped on because the old one didn't work, that kind of accumulative accretion look."

The extent to which the economy no longer benefits the consumer is perhaps most noticeable in the streets of





Director of photography Jordan Cronenweth (RIGHT) tended to use a soft, warm, frontlight often from a low angle in conjunction with hard backlight and smoke to create a look for *BLADE RUNNER* which harks back to classic black-and-white movies while at the same time being appropriate to the futuristic setting.



the city conceived for the film. Mead, who was originally hired to design vehicles for the film, began doing sketches of the streets as settings for the vehicles and gradually became involved in visualizing a great deal of the environment for the action in *BLADE RUNNER*. He recalls the concept developed for the city: "First of all you had this incredible congestion at street level. The streets had become like the underground sewers of Paris or the leftover space as you built higher and higher. I made a sketch of the typical new city where we had the World Trade Tower size building which is now old and the new buildings going up past 3000 feet high. Then you start to build an entire elevated network of connections because decent people don't live below 60 stories above the ground. So the street level becomes an access corridor and really nothing more. If you are forced to live there by economic accident or whatever, it's a very unpleasant place to be. You get this congestion of cars and big machines that are just there. They are owned by the city, and they just sit there for a month. People are camping under them, and there is a Hong Kong or Calcutta kind of density that Ridley was after. The Oriental graphics on the streets contribute to

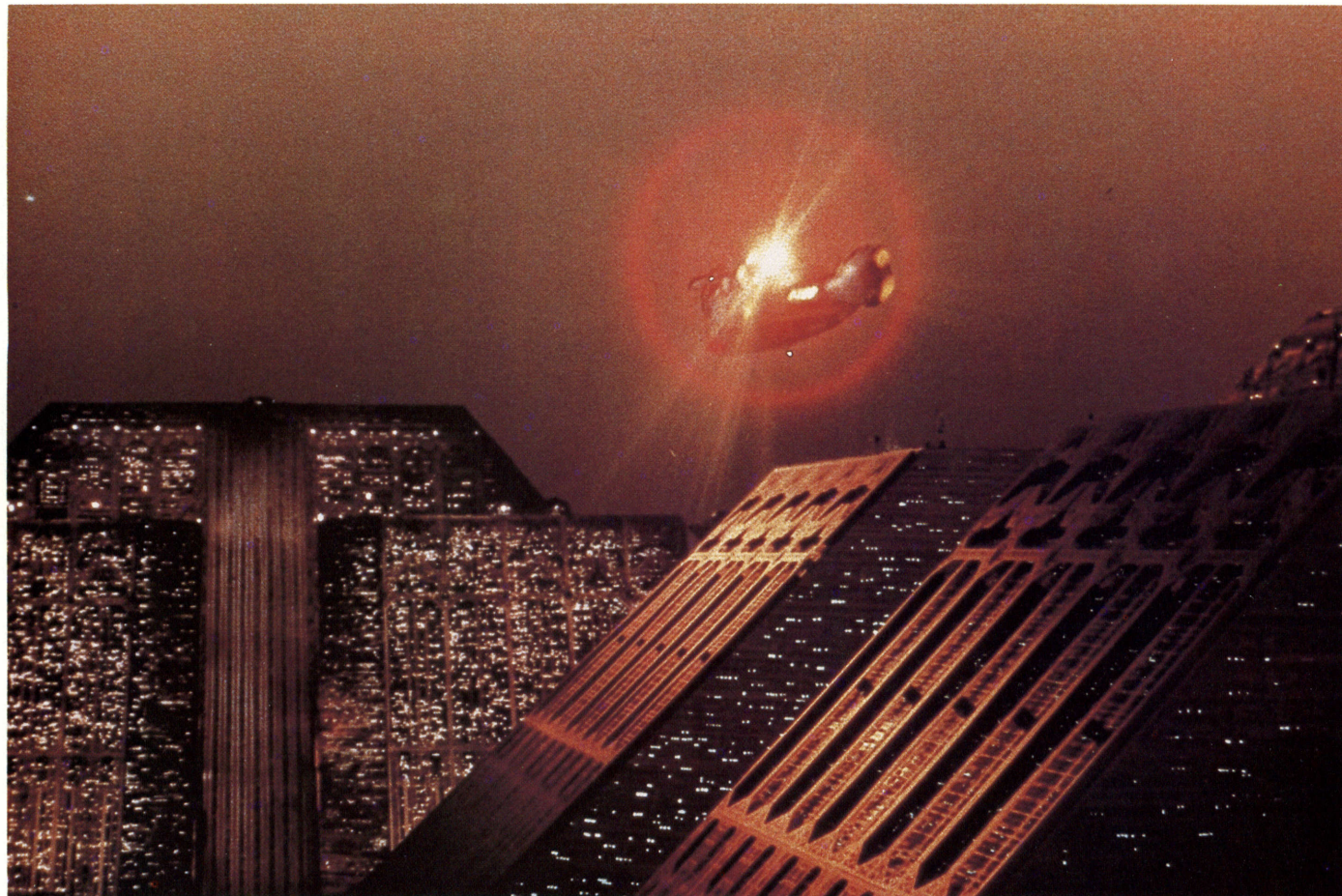
that density without being as distracting as English language signs would be for an American audience. They give you the visual crowd and the add-on visual jumble without too much distraction. I had noticed that myself in Tokyo on the Ginza where the signs look incredibly jumbled, but I was not distracted by being able to read them so I could enjoy the pure visual composite they created."

The other extreme in the city is represented by the 700-story pyramid housing the offices of the Tyrell Corporation responsible for the creation of the replicants. Production designer Lawrence Paull describes the executive office at the top of the pyramid as "Establishment Gothic." It has black marble floors, 20-foot columns, a black marble desk and a huge picture window overlooking the entire city.

Although *BLADE RUNNER* involves a vision of the future and a conception of the impact of genetic engineering, Scott is quick to point out that it is not a "serious" picture, and the production design reflects this basic attitude towards the story. "The film is a tongue-in-cheek idea of what could actually happen if the replicant industry becomes a large conglomerate, a mono-

Continued on Page 715



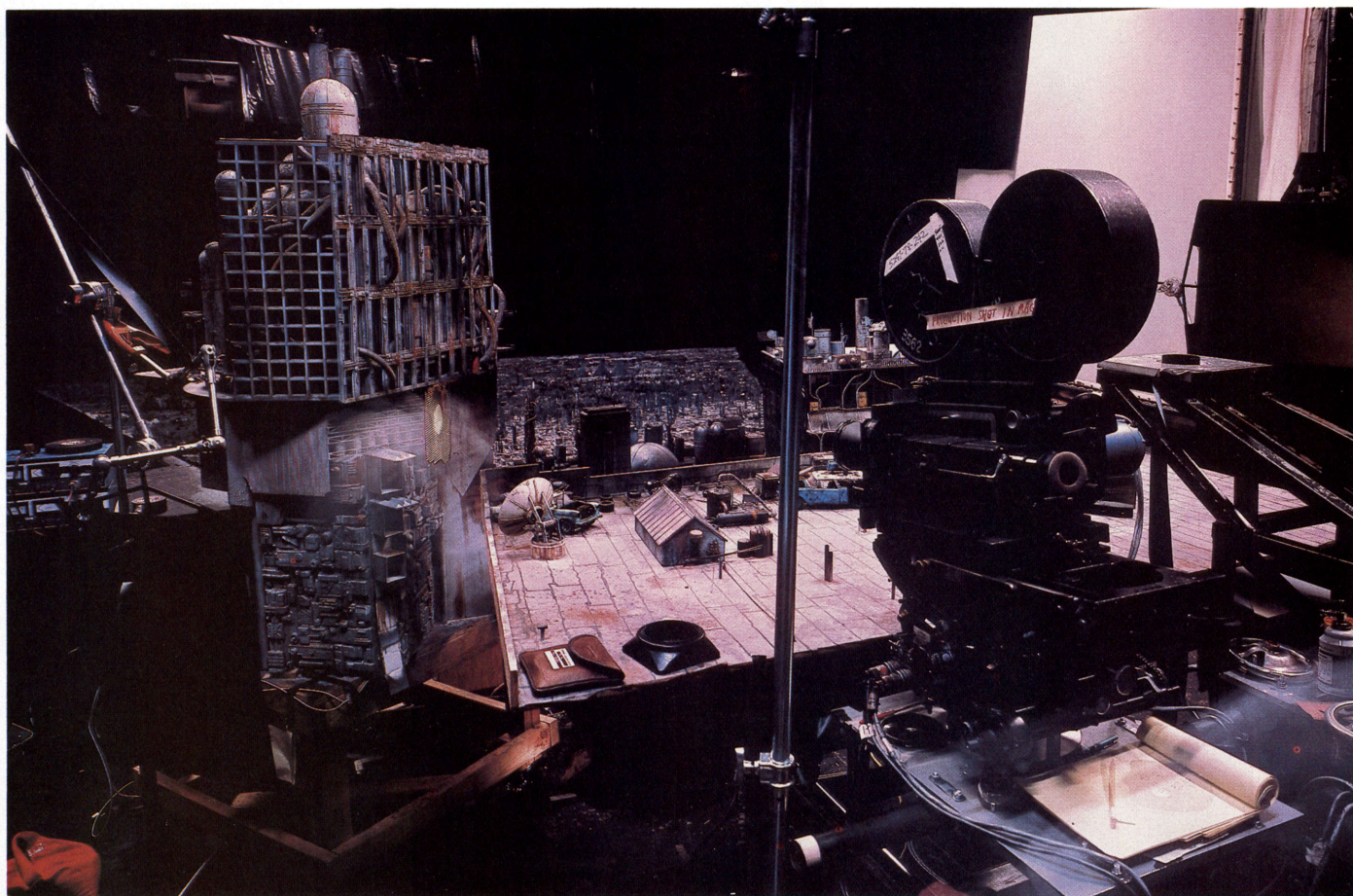


Director Ridley Scott (LEFT) has a very strong visual sense. He often communicates by means of sketches, and his background as an artist and a production designer is evident in the richness of the futuristic settings for **BLADE RUNNER**.



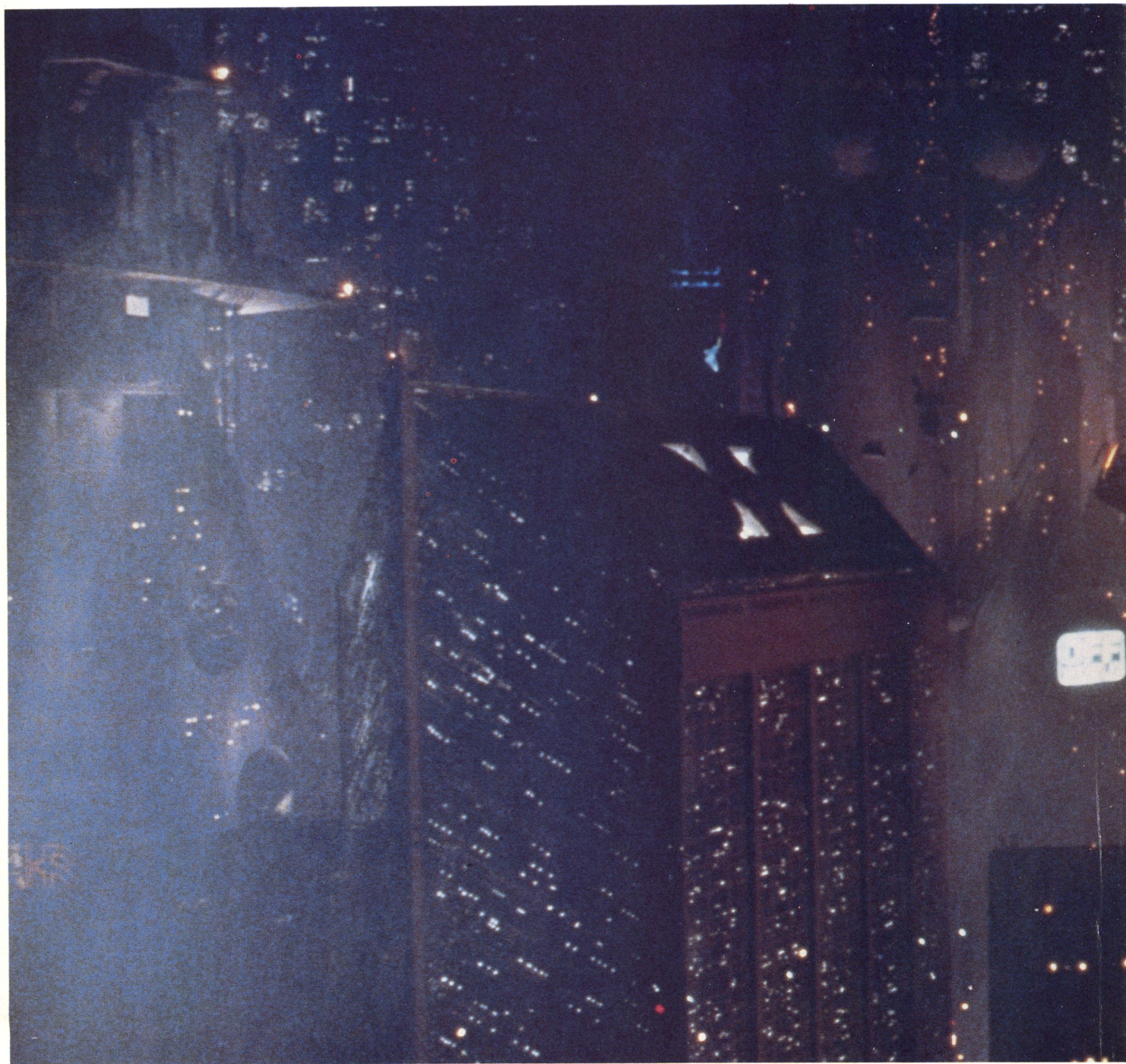


Douglas Trumbull (RIGHT) headed the special effects unit for BLADE RUNNER along with Richard Yuricich and David Dryer. There were over 90 effects shots, some of which involved as many as 30 or 40 different elements. Often a shot would involve live action and miniature work blended together with a matte painting.

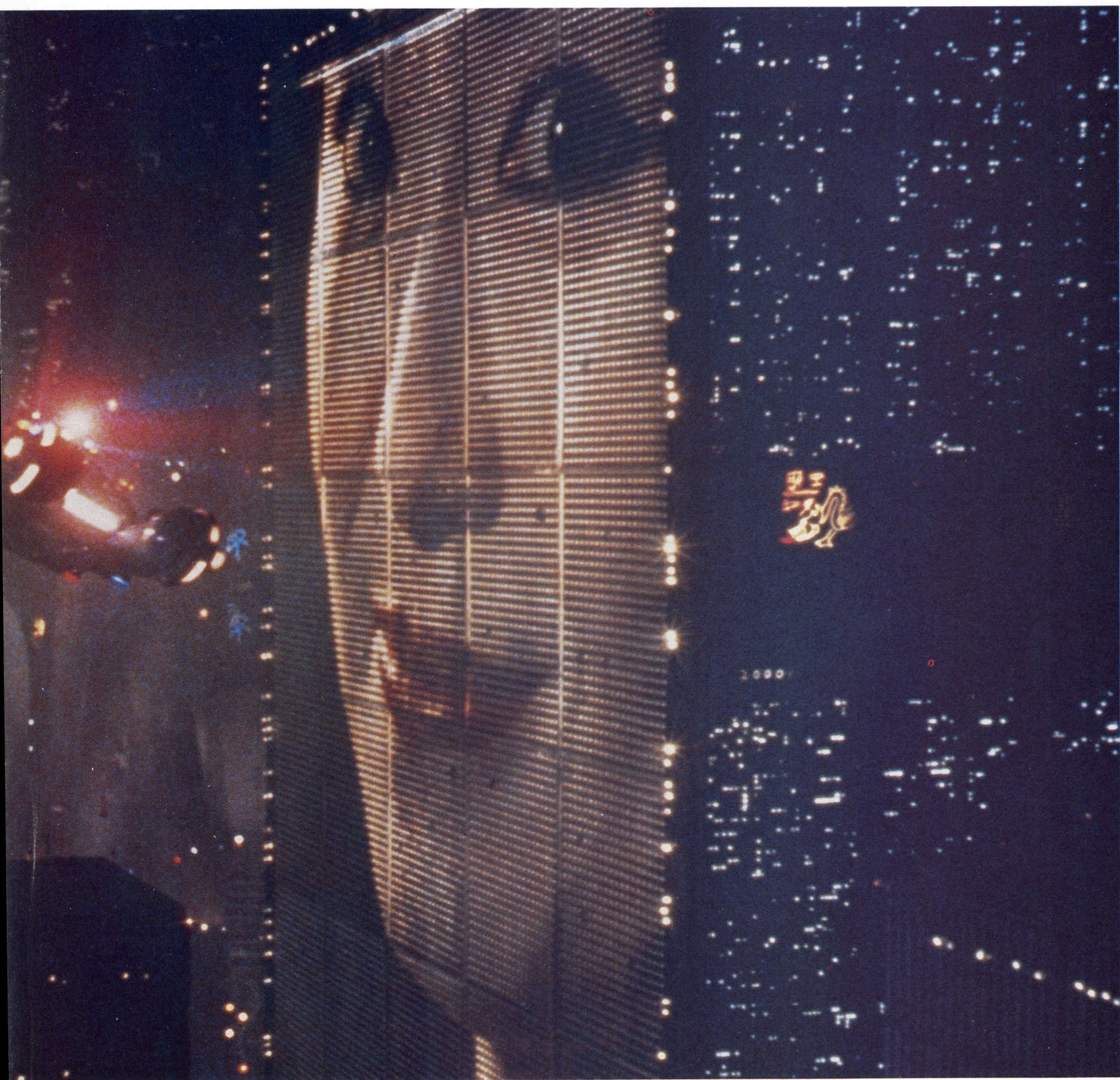
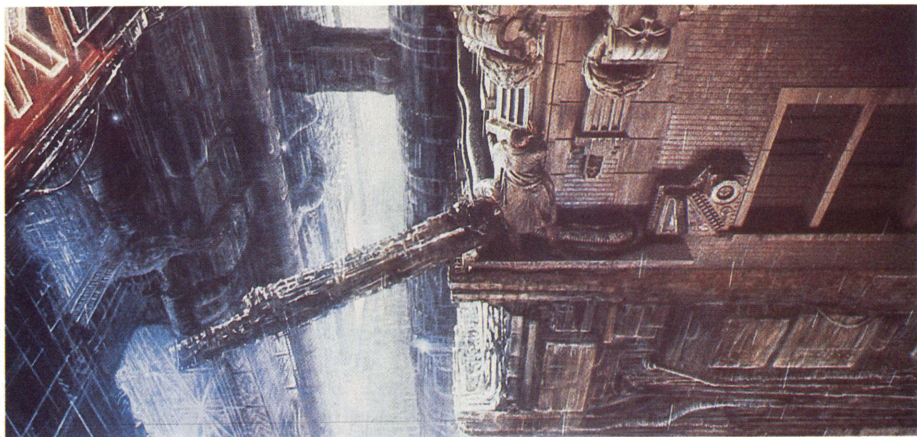




(LEFT AND BELOW) A Spinner flies through Los Angeles by means of the magic of miniatures and motion control. The giant face is an example of the video ads seen on buildings and blimplike vehicles hovering above the city.



(RIGHT) Harrison Ford clings desperately to a ledge high above the street in a shot combining live action with a matte painting.



BLADE RUNNER™

SPECIAL PHOTOGRAPHIC EFFECTS

EXCERPTS FROM AN INTERVIEW WITH DAVID DRYER

Editor's Note: David Dryer was one of three special photographic effects supervisors for BLADE RUNNER along with Douglas Trumbull and Richard Yuricich. He is a Phi Beta Kappa graduate of the USC film department and has worked as a documentary editor and as a director of commercials involving sophisticated special effects.

The special photographic effects for BLADE RUNNER were executed by Entertainment Effects Group (EEG), which is a partnership between Douglas Trumbull and Richard Yuricich. We had a crew of over 50 people involved in miniature work, matte painting, optical compositing and some front projection. The miniature photography extended over a period of about ten months, starting more or less concurrently with the live action photography. There were over 90 special effects shots made for BLADE RUNNER. Not all of them ended up in

the picture, but most of them were quite successful. They varied from simple scenes composited from perhaps three elements to complex shots involving 35 or 40 elements not counting the positive and negative mattes for each element.

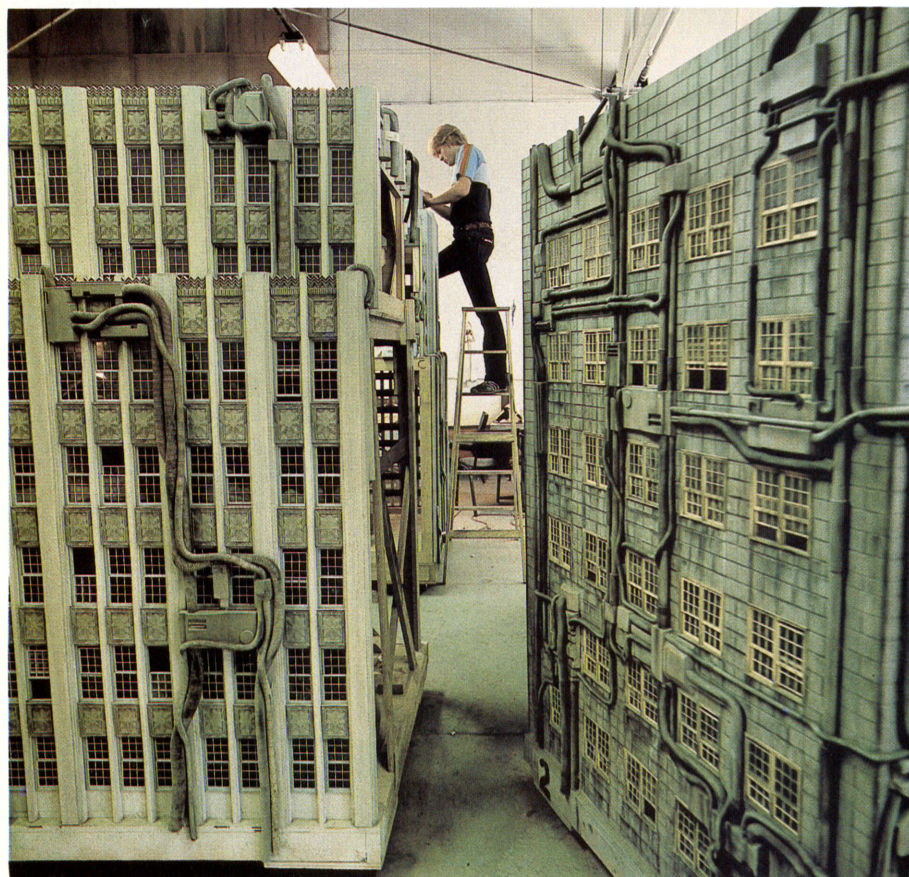
Except for some high-speed 35mm photography of explosions all of the special effects work was done in 65mm. (The negative is 65mm while the print is 70mm.) Douglas prefers working in 65mm to 35mm or VistaVision, and he recommended doing all the effects in 65mm at the outset of the project as a means of maintaining image quality. Using the larger format reduces the grain buildup, so that you don't have the thing that you see in a lot of effects films where you can always recognize an effects shot because it suddenly gets very grainy. Anytime a live action scene in BLADE RUNNER was designed to have effects added to it later, it was shot in 65mm as were the miniatures. Judging

from the tests I've seen the quality of the effects shots should match brilliantly with the rest of the live action footage—even though we sometimes had to go through five generations in the optical work in order to get the effect we wanted.

Douglas also prefers motion control to blue-screen work. He has found that blue-screen is an adequate technique for hard-edged mattes, but doesn't quite provide the clarity he wants. He prefers to use frontlight/backlight to pull mattes off using a second pass. The motion control system used for BLADE RUNNER was essentially the same as the one used for Star Trek and Close Encounters, affectionately known as the "Ice Box." It has at least eight channels of control. It can pan a camera, tilt it, follow focus, track in and out, and boom up and down. Depending on the shot, you can feed several channels of information to the stepper motors for each pass of the camera. If you are going back on an additional pass to double expose over the original negative—which we did a lot—you can program new information into any channel that is not being used to control the move and create, for example, a light that rotates at a certain speed.

We did some shots where the film was in the camera maybe three days solid doing multiple passes. We had one instance where the Department of Water and Power did us a real favor. After being in a shot three days (and behind schedule to boot), they decided to shut down for a millisecond. When they did, the computer ran away, and the camera, which weighs about 70 pounds, suddenly on its gimbal just started to go over. We had to hit the panic button, dump it all and go back and start all over again. It would be nice to have our own generator so that we could insure that the power was always there and constant. We also had an earthquake in the middle of a shot, which caused some buildings to move so that they didn't match up to the other passes we made!

Another technique which Douglas likes to use is the Smoke Room. He has found out by experimenting that one of



the mistakes a lot of effects people make is to shoot a miniature in a clear room. Without smoke you don't get the aerial perspective that you get in atmosphere. Even the purest of atmospheres creates an aerial perspective. Colors become less distinct; there is a blending and a softening of resolution the further and further away you get. Smoke is a microcosm. It creates the illusion of distance and can make a miniature which is 12 feet away seem much further away. So in addition to matching the smoke effects used in the live action photography, we used smoke for almost all the major city-scapes or industrial landscapes. Even the flying machines were often shot in smoke to add depth and create a sense of aerial perspective.

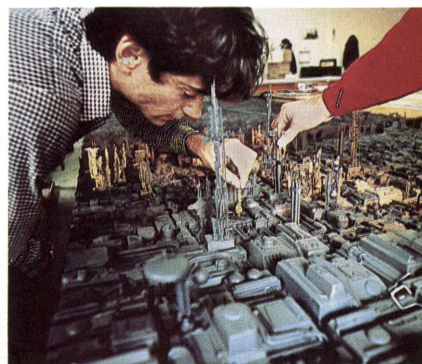
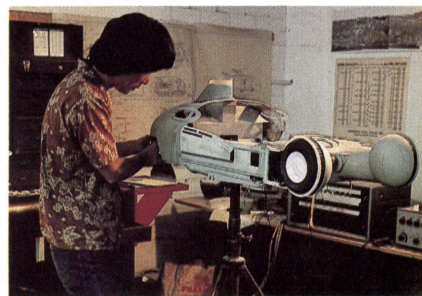
In addition to the Smoke Room, another technique we used to enhance the aerial perspective with a flying object which was being optically composited with a background was to systematically subtract exposure and actually start to drop the matte away as the object receded into the distance. This caused it to become contaminated by the background as it got further and further away from camera and to become less and less bright. It tended to give the feeling of going off into the smoke or haze. Otherwise if the object retains its brightness and resolution as it recedes, it tends to look like a postage stamp stuck on top of the background and doesn't seem really to belong in the scene.

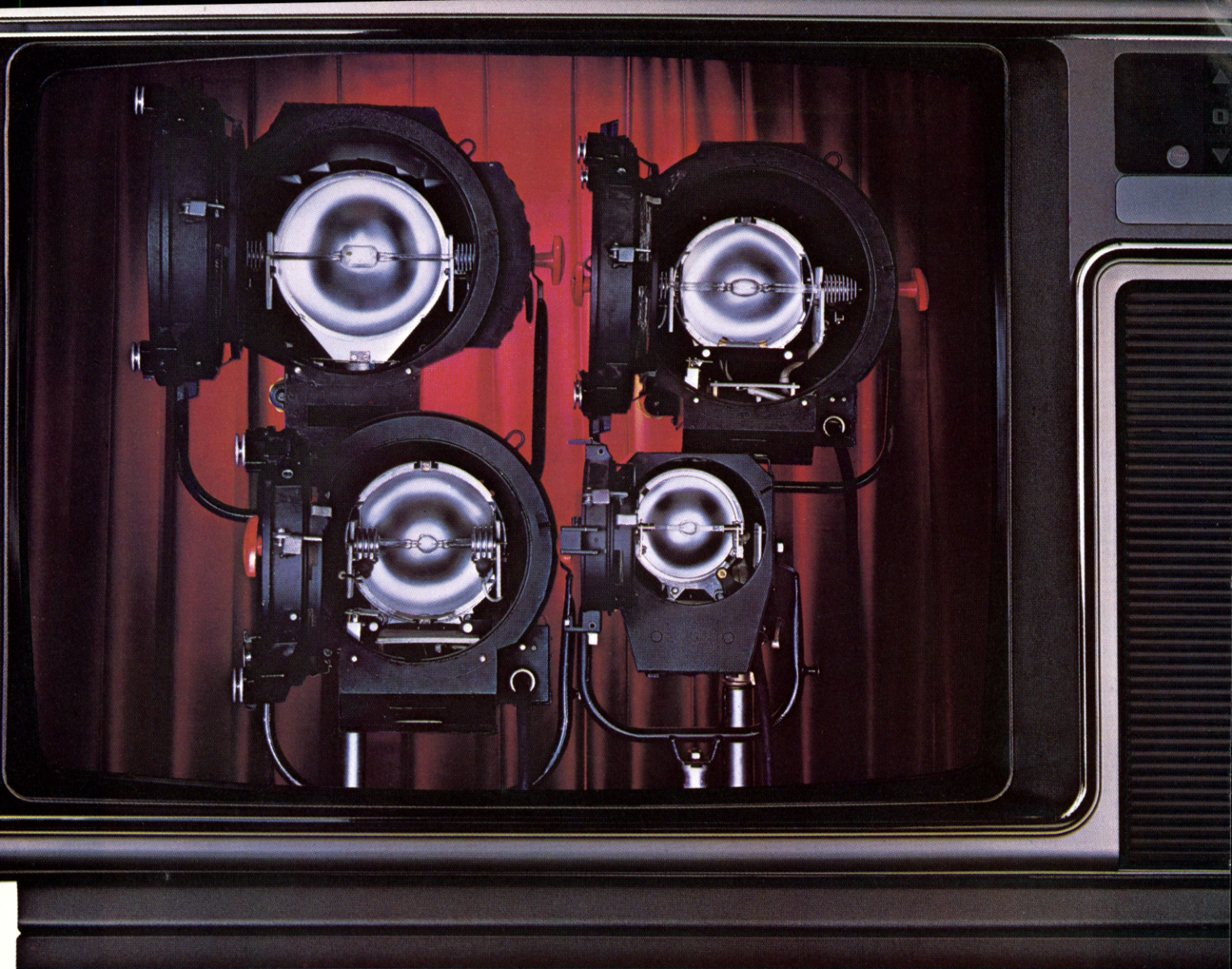
Another key ingredient in our miniature photography was the use of inter-

active lighting. If you shoot two elements for a scene and one of them involves some kind of light source or a reflective surface, the lighting of one has got to be affected by what is happening in the other. We tried to keep track of that all the time. For example when an explosion was to be added to a shot of a tower, we would have a little inky light focused up into a dental mirror which would reflect back down onto the miniature tower. The computer for the motion control system would then ramp that light up and ramp it back down on the proper frames of the shot. This would make the tower glow a little bit coincidental with the explosion in the final shot. Similarly if there was a searchlight involved in a shot of a vehicle flying through the city, we would alter the lighting of the appropriate elements to give the effect of the searchlight hitting the vehicle or a building at the proper moment.

Work on special effects for **BLADE RUNNER** started long before I got involved in the project with meetings between Douglas, Richard Yuricich, Ridley Scott (the director) and Ivor Powell (the associate producer). The designers were brought in, and then work began on the matte paintings and miniatures. They figured out what scale they wanted to work in and began making the Pyramid and the industrial landscape that we see at the beginning of the film. About one-third of the way into principal photography, Douglas was called away to work on his own film, **BRAINSTORM**. That was the point at which I became involved .

Continued on Page 725





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PRODUCTION OF
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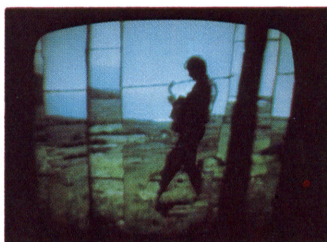


Director Bill Dear and Cinematographer Bryan Greenberg provide a glimpse behind the scenes on a film production designed expressly for the home video market.

C H O R N E Y



A pickup truck was used to dolly along a picket fence shooting Nancy Gregory as she danced over the hills of Big Sur. A similar shot of Nesmith was combined with this shot in video editing using the slats of the fence to generate a keying pattern.



DIRECTING FOR HOME VIDEO

By WILLIAM DEAR

The greatest challenge in creating original programming for the home video market is introducing the viewer to the potential of the form. Unlike a "STAR WARS", that comes on the home video scene like an old friend showing up in your living room, "ELEPHANT PARTS" was a total stranger. A small portion of the videofile had been following the career of Michael Nesmith through the various short films we had produced over the years (i.e., "RIO", "SUNSET SAM") but to the average home video buyer we were an "Elephant's what?"

The title is derived from the fable where seven blind men define an elephant. "ELEPHANT PARTS" had to be different things to different people. Rather than follow a single theme or story line, "ELEPHANT PARTS" rapidly moves through a series of musical comedy numbers and parodies of commercials, TV shows and films. Being a filmmaker, I kept a very conscious eye on not letting any part take on the characteristics of a skit. The black and white detective movie, aptly titled "THE

WRONG GOODBYE" by our co-writer Bill Martin, creates an illusion that you are watching an old movie. The musical segments, that are the backbone of the piece, take you on flights of fancy, reminiscent of the old Hollywood musicals. The only difference is that the comedic content is wacked out. It is this commitment to the integrity of each segment that provides the viewer with the single most important element of home video software: rewatchability.

Controlling what you watch and choose to rewatch becomes the viewers' choice, as opposed to that of a network or cable programmer. There is a signal here for the filmmaker undertaking a project in this new entertainment medium. It is the same structure characteristic that has created the new generation of ultra-high grossing blockbusters that draw the same people back into the theaters to see a film two or three times. Don't get me wrong — "ELEPHANT PARTS" is tiny potatoes compared to the "event" cinema of Lucas, Spielberg or the early Disney classics. But, project ahead, to the time when the average home video library will contain all these titles and it will be the films that can be enjoyed in part as well as in total, that consistently run on our home screens. It is the evolution of "word of mouth" into a very accessible electronic "show and tell" that has allowed "ELEPHANT

PARTS" to enjoy its current success. Be it good or bad, the hardware even encourages the user to shuttle forward or back, speed up or slow down action, re-viewing it in endless numbers of ways. Herein lies the challenge of this new form. Writers, directors and cinematographers working on made-for-home-video projects should welcome the freedom to experiment and build the levels of production that allow for multiple viewings.

"ELEPHANT PARTS" is a parody of its own format: television. Our audience, pre-conditioned by the ever-present "tube", instantly oriented itself to the jump from game show to commercial to movie segment. The non-linear structure of the overall piece is also carried into the individual sequences. The musical numbers best illustrate this technique. Film continuity is moved to a different level here. The picture is used to visually score the music. The cinematography is given license to change during sequences, allowing color and light to evoke a sense of continuity through mood. The physical characteristics of the sequence, the actors, the sets, the props can change because the continuity exists in a marriage between the implied image and the music. We also wove our actors into both the comedic dialogue pieces and musical numbers, a subtle continuity in reappearing faces.

If a viewer is to watch this again and again, he must be rewarded with new information that seems to surface with multiple viewings. The director and cinematographer work very closely here to construct the various visual levels that give the piece its rewatchable quality.

"ELEPHANT PARTS" has enjoyed great success for a newcomer in the home video field. By winning the first Grammy ever awarded a video production as well as Video Review's best director and best made-for-home video awards it has brought recognition to the form. That is the most important aspect of its impact.

SHOOTING A VIDEO LP

By **BRYAN GREENBERG**

There are many formats in which a cinematographer works. "Rock video" is one where you can fuse two mediums and evolve a totally unique form. That was the technical challenge of ELEPHANT PARTS. I had been associated



Strong backlight and a fog machine create a lighting effect in an orchard in Northern California as Michael Nesmith performs a song to playback.

Joseph Gough



(LEFT) Three shots of Nancy Gregory dancing in a doorway were combined in the video editing to create a split screen effect. (RIGHT) Colored gels and fog were used on the stage along with a fog filter on the camera to produce a rainbow effect as the camera dollied during another dance number.

Joseph Gough



A 360° camera head was used to create a spinning effect during a romantic kiss. The head was originally an O'Connor 200 made to track missiles. Two star filters and a fog I were all used on the camera to enhance the mood of the shot.



with ELEPHANT PARTS from its conception and began filming the musical sequences after Michael Murphy finished filming the comedy segments. The recipe was simple: film to playback, transfer negative to one inch video, off-line edit a rough cut, go into on-line editing and add the pzazz of video effects.

ELEPHANT PARTS contains two musical segments that had been completed earlier. "Rio," made in 1976, was conceived by Michael Nesmith and Bill Dear under Bill Dear's direction. Soon after the success of "Rio," Bill and Michael made "Cursin," which is generally accepted as one of the most widely seen video clips. Three new songs, "Magic," "Light," and "Tonight," were shot specifically for ELEPHANT PARTS. The success of ELEPHANT PARTS is due to Michael and Bill's ability to grasp the force and power of the music and marry it to film.

"Magic" was shot in three days, or rather one day and two nights, entirely on location in Monterey. It is a love song and was staged as a period piece. It begins in a 50's style drive-in restaurant. A roller skating car hop (Lark Alcott) is swept away by a new customer (Michael Nesmith) on a magical journey. Following in hot pursuit is her boyfriend, the drive-in cook (also Michael Nesmith). This leads to a happy CASABLANCA-style ending—all told through pictures and song.

Our first day of shooting was on the stage where art director Cathy Poster and crew constructed a large starfield backdrop. Meanwhile the interior wall of the aircraft they built was being hung from the ceiling. The previous night GONE WITH THE WIND had been on television, and Bill made a dub of the scene where Clark Gable and Vivien Leigh first embrace and kiss, which we used in planning our sequence. We wanted to go beyond that yet still keep the same visual style. Michael and Lark perfected the proper way to execute "the kiss," and Bill conceived an effect that would show the interior of the plane revolving as they kissed. The gaffer John Bonfield found us a camera head that would do a complete 360 degree rotation. After some testing we shot the scene, placing Michael and Lark in front of the plane interior and the star backdrop behind it. To bring out the effect we were after, I stacked two star filters and a fog I. I usually would have a low contrast filter too; but star filters, when stacked, create their own low contrast effect. We did a complete 360 degree turn as they kissed, and it worked very

well on film. It creates the feeling of the airplane spinning, and the effect is quite romantic.

The first night location was at an old A & W drive-in where they still had real car hops. To add even more sparkle and charm to the drive-in, we made a long fluorescent light strip which I wrapped with MT-2. It was then placed along the outside counter. The fluorescents created a very strong light source that enhanced the scene and gave me justification to go with heavier gels on many of the lights. Since it was night, I stayed away from white light as much as I could, covering many lights with various degrees of orange and straw colored gels. This all made for very rich skin tones which could be further enhanced in the video tape transfer of the negative.

Given the nature of the project, I felt it was important to keep the camera moving as much as possible. The flow of the music and the flow of the camera equally create a rhythm, and it is that rhythm and flow which carries the viewer from scene to scene. For that reason just about every scene was staged for dolly moves.

The following night we found ourselves at the Monterey airport to shoot the end scenes (which were to have the CASABLANCA mood). There before us sat a 1941 twin Beech aircraft which had actually been painted red for some unknown reason. Unfortunately the wind was blowing in strong from the sea, and the crew quickly had their hands full. Even though John staked all the lights in place, the wind would still blow the lamphheads around. I finally became impatient and recruited volunteers from the crowd of bystanders to hold down the units.

After much running around, we finally had created a runway carrying the plane in the background. In the foreground were Michael and Lark, saying goodbye and walking arm in arm into the night. One effect in the shot required Michael to walk to the plane and then disappear along with the plane. Making Michael disappear was simple enough, but having the plane go with him required towing the plane out of the background. Advance planning enabled us to do this and still match the light while at the same time maintaining a low profile. I am amazed that no one landed on the location while we were shooting.

The next song, "Light," was a chance to pull out all stops and really fuse film and video effects. A scene by scene script for the sequence would not have been practical, although we did plan out certain scenes that were to cover differ-

ent parts of the song. I did an off-line edit on ¾" which was then used as the map for the on-line 1" editing session with our editor, Danny White.

Part of the style that I like in filming rock video is the use of hot lights. In the song, "Light," I was able to take this to the nth degree. We took every light (short of the fixtures on the wall) and placed them on one side of the stage, all on stands at different levels. I then covered each one with a colored gel. Across the stage on the other side the camera was readied on the dolly. Between us and the lights were Nancy Gregory, the choreographer, and Michael Nesmith. Every light was then adjusted and aimed at the camera. To make it more interesting we fogged the place; and, as if that weren't enough, I put a Harrison Fog-2 filter on the lens. All that was left was an f-stop. I had the gaffer flip a coin and decided to shoot at T4.5. The results were quite striking. Through the mist of streaking colored lights danced two silhouetted figures. As we dollied around, the lights would sweep across the frame creating a constantly changing background of color.

On stage we created another effect that was very simple, yet always receives comment. We placed Nancy behind a doorway flat with a 5 x 8 frame of soft frost behind her. Into the soft frost I pumped hot white light. With the door of the flat closed, the set was black. The door would then open, and Nancy would be dancing inside. I reframed the camera, shot the scene again and then repeated the process one more time. The result was three shots with the door right, left and center frame which were then combined by Danny in the video editing. By lining up each door-open, he could create the effect of a multiple split screen, except that in each doorway there was something different going on.

Outdoors we were able to become even more mystical with effects. While driving around looking for locations, we came across a wooden picket fence. What better place to experiment. First we filmed Michael walking and playing his guitar to playback of the song, "Light." We shot through the picket fence, dollying with him as he walked. Next over the same course we filmed Nancy dancing. In both shots the camera saw past the picket fence to the rolling hills that lead out to the sea. That by itself was gorgeous footage. Working with Danny, Bill took it two steps further. The logical thing would be to superimpose the two images together. They

not only did that, but they turned the fence posts into a matte pattern and keyed in the other scene, flashing it on and off while enhancing the background so that it shimmered like a mirror. I have never seen an effect like it before, and to my mind it represents the pure fusion of film and video.

Another stop in our location hunting resulted in one of the most striking shots of the production. This time we put Michael directly behind the sun while standing in an orchard of big branchy trees. To this scene we added the fog machine and a little front fill light. As he sang, the fog made shafts of light from behind his head and an aurora burst out through the burning sun light surrounding his head. This was one scene Bill and Danny could not add to in the video editing.

The song "Tonight" was the most enjoyable for me. The set was a living room, the main emphasis being on the television set. As the camera moves past our hero, he turns on the TV, sits back and relaxes in his easy chair. What appears on his TV screen is Michael singing different parts of the song, "Tonight." In between are quick cuts from ELEPHANT PARTS. What made this segment interesting though was the television set. Instead of having a real TV screen, it was a cut-out with Michael performing live inside it. The TV was built to Michael's height so that all he had to do was step behind the "screen." As the song progressed, every time we cut to Michael, he would be in a different outfit from one of the earlier songs.

This sequence was also the first time there was a major change in the lighting. Up until then most everything had a hot backlight or hot, raking sidelight, but "Tonight" needed a soft look. The TV "picture" just glowed in ambient light while the outside of the TV set was softly lit and about a stop under exposed. You really felt as if you were watching a TV through TV in the final product.

The real payoff for "Tonight" was taking the camera out from the set and revealing the whole soundstage packed with everyone else. I am sure if there had been a way to film it without me behind the camera, I would have been there too. I was, in fact, the only person on the crew for the very last scene. The scene began as the outside doors of the soundstage opened. The actors danced out into the street and I slowly zoomed back to reveal the crew taking part in the festivities. For a moment I felt like a one-man crew with total control over a production number, and I hated turning the camera off. ■

SINGLE CAMERA VIDEO PRODUCTION

Part II: "Kudzu" & The CBS Electronic Cinematography System

By RICHARD PATTERSON

"Our director of photography was Bill Gereghty with whom I had worked on 'Magnum.' He was Gordon Willis's 1st assistant on GODFATHER II and had never done a tape shoot. That was a criteria of mine, by the way. I wanted all the people to think that tape was something you put on a Christmas package." Rod Daniel, producer-director of "Kudzu", a half-hour comedy pilot for CBS, is describing his approach to staffing the first commercial production to use the CBS Electronic Cinematography System for shooting videotape single camera film style. "I had a film unit production manager instead of the sort of associate producer you might normally have on a tape show. When we got to post-production and I started talking about 'on-line at Vidtronic's' and 'dubbing a one-inch for delivery,' I might as well have been speaking French."

Fortunately Daniel's own background in tape production helped him plan the post-production work, but he sees the difficulty of finding production personnel with the necessary combination of film and tape experience as one of the biggest problems facing the producer who wants to shoot single camera videotape. "A film associate producer is an entirely different animal than a tape associate producer, and you can't hire two of them, so what are you going to do?" Daniel speculates that if the show becomes a series and is produced on tape as the pilot was, the staff would have to include a tape associate producer.

His experiment with the crew paid off, however. He was able to shoot with a film crew and got a look that he is very pleased with. Gereghty lit in ways that might have made an old-fashioned video engineer very uncomfortable, but as Gereghty puts it, "It worked out just fine. It's a bit different looking. It's not exactly 'film,' and it's not exactly 'tape'."

Daniel, who feels that the British have

been doing better videotape production work than Americans for years, saw this particular pilot as an opportunity to demonstrate that tape shows don't all have to look like a flat, high-key three camera sitcom. Single camera videotape production offers an alternative to both multi-camera production and single camera film production. It can give production value superior to a multi-camera show at a cost substantially lower than a single camera film production.

Before making "Kudzu" with the single camera system developed by CBS, Daniel would never have chosen to work in tape except for economic reasons. "If they'd offered me film or tape, I'd have chosen film in a minute. But now I think I'd shoot it on tape. The EC-35 is phenomenal. But whether the camera is phenomenal or not, video production is here. Shows are going to be done that way, and that's all there is to it. The best thing film people can do is work together and make the thing that we want rather than stand back and throw rocks and say tape looks terrible. And I think that's unfair anyway, because the look of our show decies it. I think the stuff is gorgeous. I'm very pleased and somewhat surprised."

Daniel is quick to warn against exaggerated expectations of single camera tape production though: "It's not a panacea. There is no panacea. It's got advantages; it's got disadvantages. It's got more advantages than disadvantages, however. When you go to bat, you hit more times than you miss with this system. That applies across the board from the budget to the 'look.'"

The use of the CBS single camera system for this show grew out of Daniel's approach to the script. Network executives tend to assume that a half-hour comedy is a "sitcom" which can be shot in one day with multiple cameras on a stage in front of a live audience. The

license fee for a multiple camera show is substantially less than that for a single camera show, and there are very few comedy series that can afford to shoot single camera film. Daniel saw the script for "Kudzu" as requiring something other than the conventional sitcom approach: "In my mind, most importantly, it was conceived as a non-audience show more than anything else. Because of the nature of the script, it was a show that needed to be very gentle, very quiet. It is set in the South, and it needed that kind of ambience around it. It did not need some guy coming out and warming up some kind of hysterical audience, then bang!—go into a sitcom."

Daniel knew that the CBS engineering department had developed their Electronic Cinematography system to the point where they were anxious to try it on a real production, and he contacted Gil Wyland, head of videotape production facilities at CBS Studio Center, about shooting single camera tape on "Kudzu" even before he was set to do the show. He figured he probably could not persuade the network to license the show as a film production; but if he insisted that it had to be done single camera and then suggested single camera video tape as a compromise, they might go for it. He was right and a license fee was negotiated which was between the normal fee for a multi-camera tape show and a single camera film show.

The CBS Electronic Cinematography system consists essentially of two elements: the Ikegami EC-35 camera which was designed in response to a set of specifications developed by CBS, and an off-line editing system designed by CBS especially for single camera production. CBS built the prototype of the editing system themselves since no manufacturer would take it on, but Sony has recently licensed the design from

CBS and plans to market it.

The editing system is a key ingredient in the CBS approach to single camera tape production since it is designed to give an editor the same kind of flexibility in re-cutting the show as he would have with film. Trying to edit a single camera production on conventional video editing systems can sometimes be very frustrating. Daniel would not have been so interested in shooting on tape without the CBS editing system. "We shot a single camera show on WKRP once, and I blot it out of my memory. It was truly trying to put a square peg in a round hole. Off-line editing is not geared to do a single camera show. They are geared to take a live cut from a multi-camera show. CBS's system is designed to do exactly what we did."

Once the commitment was made to shoot single camera tape, some ground rules were laid down. A film crew would be used, and there would be no video engineer telling the cameraman what he had to do. Daniel was even prepared to shoot without a monitor. "One of the things I said — and I was very adamant about this — I said, 'Bill, I do not want 100 experts back there, least of all me, telling you how to light your damn set. If you don't want a monitor, lets look through the hole and shoot it. Let's go all the way.'"

Geregthy was glad not to have a video engineer advising him about lighting or exposure. "I talked with Gil Wyland and all the head engineers at CBS and everyone agreed that the shoot would be run just like a film show. This was understood up front, and they left me totally alone. If I had had to put up with interference from engineers and video technicians, I might have gotten more confused. I might have been intimidated and not gotten the product that everyone wanted." Although Geregthy liked the fact that his image was being recorded exactly the way he saw it, he was quick to agree that a video engineer could be helpful to a cameraman if there was a good rapport between them. "It would be wonderful if you could get together and have somebody with the same artistic feeling instead of having to argue. I still think the director of photography should have the last say along with the director and the producer, but it could do nothing but help to have a video engineer with whom you have a good rapport."

Daniel chose Geregthy because he liked the way he works in film: "One of the reasons I wanted Bill on this thing is because of his style of lighting. He's not a big hard light guy, and he doesn't light

around 100 footcandles. He lights about 35 or 40, and he does a lot of bounce. He's very fast."

With film Geregthy likes to force develop all his interiors: "I like to shoot with 20 to 30 candles for the key unless it is a large scene and we are in a rush. I'm usually 40 to 50 at the most. I force develop most all the interiors that I shoot unless it is a practical location with a lot of windows where I might have a problem with it. Basically, I try to force the interiors because I like that look."

Daniel wanted to work with low light levels even though he anticipated some resistance from programming executives who assume that all comedy has to be brightly lit. He laughs as he recalls describing his excitement about the kind of lighting they were doing to a programming executive with another company. The executive responded with "But how will the audience know it's a comedy?" To Daniel's mind if the audience doesn't know it's a comedy, all the light in the world ain't gonna help; or as he puts it: "I never saw a funny light." True to form someone at the network did express some concern about how "dark" the first set of dailies were.

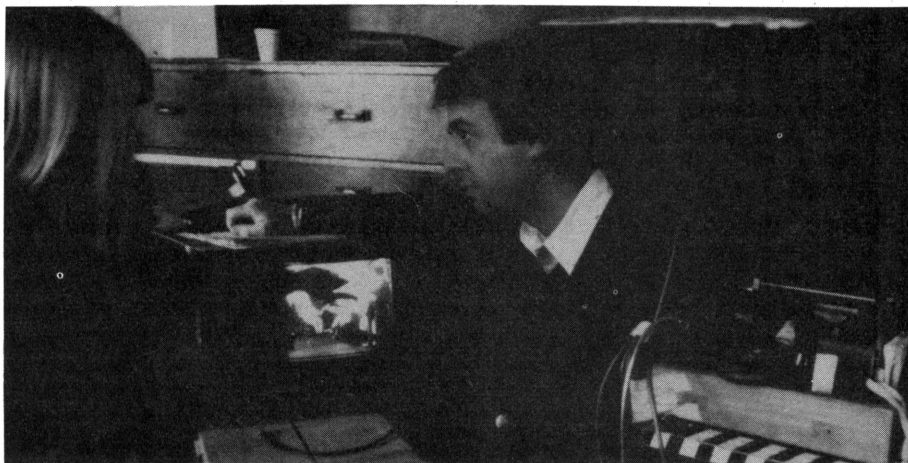
Geregthy shot the show with a 20 to 30 footcandle key at f1.6. He often used very strong back lighting or cross lighting with sometimes as much as 350 footcandles coming through a window. He even did one set-up with 8 fc on someone in the foreground and 275 fc on someone about 20 feet away outside a window in the background. He says, "It exposed like a million bucks. It just looked beautiful."

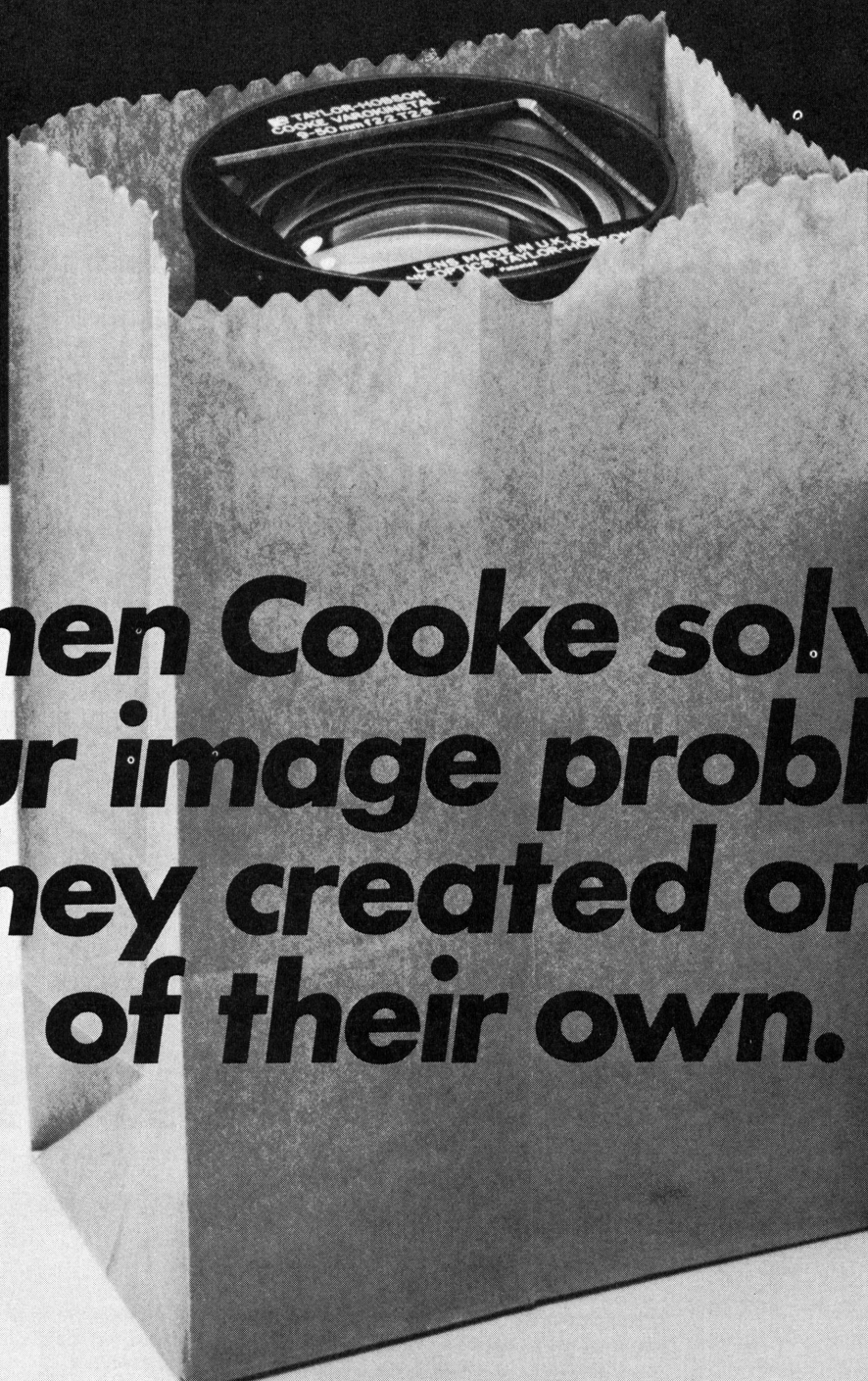
Geregthy had one full day of testing with the camera before production began. He spent the day on a large bar-room set doing as many different light-

ing set-ups as possible to see how the camera responded to his use of strong backlight and low key light. He tried to set-up with a 20 fc key and something like 400 fc coming through a window to see what would happen when an actress walked into the light coming through the window. The camera seemed to handle it very well. He also lit some night sequences and he tried every possible combination of filters. In the end he decided to shoot the entire show with an LC-3 low contrast filter. He felt that fog filters seemed to flare too much and that an LC-3 gave him the closest look to what he liked with film. He did use a fog filter for an effect during one scene in a preacher's office "just to give it a little glow." He also used a combination of an LC-2 and a little diffusion in another sequence which called for a more romantic shot of a girl. Geregthy experimented with the variable gamma control during the day of testing but only used it once during the actual production — lowering the gamma to .35 to bring out detail in a dimly lit scene. He tended to play it safe on the production rather than risk eating up time while experimenting with the gamma control.

Geregthy found that the angle and intensity of the strong back lights or cross lights is more critical with tape than with film. Adjusting the angle or intensity of a light may have more of an effect than you might anticipate, but basically he felt he was able to get the look he wanted with the EC-35. During the four days of shooting on the stage, he found he became more confident with the system and a bit more willing to try more extreme lighting ratios. Looking back he feels there was only one scene where he may have been a bit conservative and have slightly overlit the background.

Director Rod Daniel refers to the monitor in a discussion of a scene during the shooting of "Kudzu." Originally the crew intended to work without a monitor on the set in the same way they would shoot film. Daniel found the monitor useful, but insists that it would be feasible to use the EC-35 to shoot a show without a monitor on the set.





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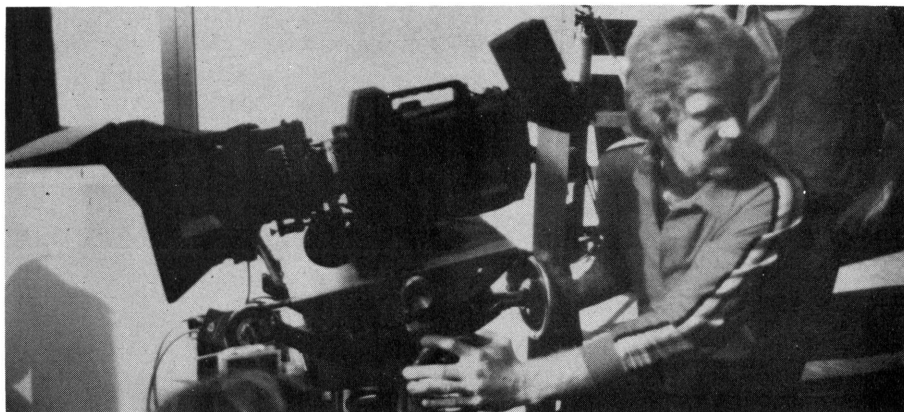
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Needless to say Geregthy would like to have had more time in pre-production to test the camera and to experiment with the gamma control and the gain control. Physically he and his crew had no problem adapting to the operation of the camera, but he feels there is a lot to learn about exactly how far you can push the camera from a lighting point of view. He does not feel you should just use exactly the same lighting you do with film when shooting tape. It is possible to get the same effects, but you need to know the limits of the camera. Geregthy did a limited amount of testing with the 2x and 4x gain boost and found that the noise was too noticeable for his purposes at the 4x setting, but that it was not too bad at 2x. He describes the noise as erratic flashes of light on the scan lines and also as a bleeding or fringing of colors on the edges of things. Geregthy said he would also like to experiment more with the controls for the detailing or edge enhancement circuits.

Basically Geregthy seems to have had three objectives in adapting the EC-35 to his shooting style. First he wanted to limit the depth of field as much as possible by shooting at f1.6. Both he and Daniel like selective focus and considered the greater depth of field of a $\frac{2}{3}$ " video camera as compared with a 35mm camera something of a drawback for the kind of shooting they were doing. Secondly he wanted to use as much of the latitude of the camera as possible to do the kinds of backlighting and crosslighting he likes to do with film. Daniel spoke of wanting to demonstrate that a videotape show does not have to be "flat," and Geregthy expressed the common concern that video engineers may have a tendency to process a signal in such a way that it is "washed out into the everyday type of game show or soap opera look." Much of the pre-production testing was aimed at discovering the limits of the camera's latitude with regard to hot backlights or crosslights. Finally Geregthy used filters to "soften" the image. In describing his tests with the filters Geregthy spoke of "a problem we've all had for years accepting tape—it's just too sharp." Part of "the crisp sharp look" Geregthy associated with videotape is the increased depth of field, but part of it too is probably the edge enhancement or detailing that video cameras use to increase the apparent sharpness of the image. Daniel also talks about the "hard" look of conventional videotape in a way that may refer to the processing of the video signal as well as the lighting techniques used. The use of an exces-



Director of Photography Bill Geregthy on the set of "Kudzu" with the Ikegami EC-35. Geregthy found that the camera adapted well to his use of bounce light, low key lights and strong cross or backlighting.

sive amount of edge enhancement can produce a look which some would describe as "hard edge" or even "plastic" in comparison to a film image. There are many factors contributing to a subjective sense of the "sharpness" of an image, and what some people consider a desirable degree of sharpness others may consider undesirable. The kind of lighting and filtering, the optics of the lens, and the method of recording and processing all affect the apparent sharpness of the image in different ways."

At the start of the production Geregthy decided to work without a monitor on the set. The sound recordist had a 1" videotape recorder on his cart instead of a Nagra. He would roll tape just like he normally rolled sound, and the signal coming from the camera was recorded on tape without any modification. The sound recordist had a small picture monitor on his cart which served mainly to inform him of what the camera was seeing.

Gil Wyland decided just for his own peace of mind to hook up a high resolution picture monitor and a waveform monitor so that a video engineer in a separate room could simply observe how the camera was performing. "I had the monitor and the waveform monitor off stage the first day because I'm a devout coward, and I wanted the camera expert who had lived with our EC-35 for the last 9 or 10 months to have those tools so he could see if the camera was really doing what we thought it was doing. Was it sitting still? Was it behaving itself? We put it clear off the set where nobody else could see it."

By the second day of the shoot Geregthy had moved the monitor out onto the set near the camera to use in evaluating his lighting and in discussing camera moves with Daniel. In retrospect Wyland is not quite sure how he feels

about using a monitor on the set. He shares the concern about too many people getting involved in an evaluation of a scene, and he questions whether a cameraman really needs to refer to it in lighting. "I'm ambivalent about it. I don't know where to go from here. Both Rod and Bill tell me that it didn't enable them to get a scene in any less takes, because the number of takes really depends on performance. I just wonder if maybe it wasn't a little bit of the old mother's milk."

Daniel sees the monitor as a mixed blessing: "You can't deny it, it is nice. I ended up looking at it more than I did in the beginning simply because it was there. If Bill had said on the third day, 'Get this thing out of here,' I'd have said, 'Fine, I know how to watch with my eyes.' But I'll tell you where it saves time. Normally when a shot is lit and a move is planned, I will ride the camera to see the shot. That takes time especially because I'm not that great with a gear head. With the monitor on the set I don't have to do that. I can look at the monitor and say to Bill, 'Slow the zoom down just a little bit.'"

Geregthy agrees: "If I tried to get an idea across to Rod, and he didn't quite understand me or whatever, all I would have to do was have him watch the monitor for a rehearsal; and it worked out beautifully. That's why I think a monitor is really a necessity on a set, however it might get in the way at times. It helps in all aspects of the lighting, choreography and everything."

Daniel still thinks it may make sense to shoot videotape without a monitor on the set. "I think if Geregthy hadn't used the monitor, he'd have gotten the same look. It was just a security blanket and a learning curve. He was proving to himself that he knew what he thought he knew."

The monitor on the set was never

used to view a playback of a take. Once or twice someone who needed to check something on a previous take would view it on the monitor at the recorder, and for the first two days Daniel looked at dailies in the editing room. Once he had the monitor on the set, Daniel stopped looking at dailies. "I'd already seen them. If I was looking at the monitor, then I was in essence looking at my dailies. I knew what I had — unless there was a technical problem or a blip or something. And we only had one tiny thing like that happen on a little close up piece out of all the hours and hours we shot."

Along with the picture monitor there was a waveform monitor, but Geregthy did not make that much use of the waveform monitor. "I referred to it, and I learned a lot by looking at it; but I have found personally the best way to light is with the regular monitor not the waveform monitor." Basically Geregthy would light the set just as he would for film. He would measure the key light, fill by eye and then refer to the monitor to see if he wanted to change anything. If anything the waveform monitor served to show him how far from "normal" his lighting ratios were, and it enabled the engineers observing the shoot to evaluate better the performance of the camera. The CBS engineers asked Geregthy if he felt it might be helpful to mount a small waveform monitor on the

camera itself, but he did not think most cameramen would be able to make that much use of it. As Daniel put it, "It's just too much technology too soon." Some cameramen may find a waveform monitor useful as an adjunct to their light meter, but obviously neither can replace a picture monitor or their own eyes.

One incident which occurred during the shoot is important as a warning to film crews starting to work with video equipment. At one point between setups, the dolly was pushed out of the way and left so that the camera was pointed directly at a 10K light pouring through a window on the set. Geregthy is not sure how long the light was shining directly into the lens; but the camera was left on, and the red tube was burned. It produced a red spot on the image which could not be completely eliminated in the normal manner by pointing the camera at a flatly lit white card. Fortunately CBS had a back-up camera on the lot which was substituted so the production lost only 25 or 30 minutes. Needless to say if the back-up camera had not been available, the time lost would have been much greater. Geregthy figures the camera must have been pointed at the light for an extremely long time, because he did shots with lights shining directly into the lens and had no problems. He emphasizes that it is important for the crew to acquire certain habits in handling the camera. The

power switch for the camera has a stand-by position which protects the tubes as well as saving power. Putting the camera on stand-by between shots keeps it warm enough to be used immediately but closes down the iris so that no light hits the tubes. Geregthy also recommends pointing the camera down whenever it is left unattended. He knows his crew will never have that problem again, and he hopes that others can profit by his experience.

There was only one other time during the production when engineers got involved with the camera. Geregthy noticed that the image on the monitor had a very slight green tint to it, and an engineer from CBS took a minute to balance the camera with a white card. It turned out that it was the monitor that needed adjustment rather than the camera. There was only one scene that required color correction during the on-line editing, and that was a scene shot on location with a different kind of camera. An exterior shot of someone going into a house had to be corrected to match an interior shot earlier on the stage with gels to warm up the light for a late afternoon effect. The rest of the show required no color correction at all, although Daniel says he would budget for color correction if he were producing a tape show that involved a lot of exteriors. His suggestion would be to complete the on-line editing and then do another dub for computerized color correction without tying up the entire editing facility.

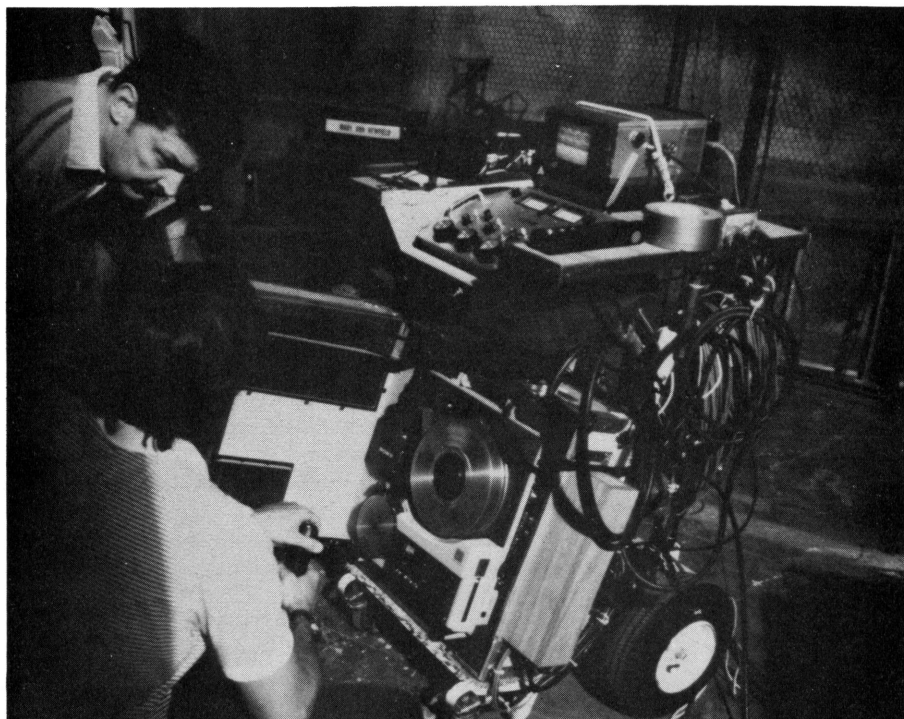
Geregthy used the Canon zoom lens for the EC-35 for the entire production except for a few times when he used a very wide angle prime lens. He felt the zoom was fine for this type of production although he looks forward to a time when solid state sensors make larger format video cameras practical, and it will be possible to use 35mm lenses for video cameras without having to add additional optical elements.

POST-PRODUCTION

The post-production time on "Kudzu" was almost four weeks — mainly because there was no pressure to deliver the finished show, and Daniel wanted to take extra time in the editing. "I had time, and I did not have a commitment to do anything else. We shot the show early so I had almost a month from the time we finished shooting to turn the show in. We would cut, and I'd get away for a weekend; then I'd come back and look at it. It was enormously beneficial."

The first assembly of the show was too long. "It had nothing to do with the

The show was recorded on a portable 1" VTR mounted on the sound mixer's cart. The mixer had a small black and white monitor so that he could see what was being shot, but he did not modify or process the video signal in any way. He mixed the sound just as he would for a film production and recorded it on the videotape.



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system; it had to do with the way the show was written. I usually shoot 40 to 45 seconds a page, and it ended up longer than that. We were damn near seven minutes over when we assembled the thing, and I had heart failure. It was the first time that has happened to me as a director, and I had no idea we were over."

Gary Blair, the editor for the show and one of the people involved in the development of the CBS off-line editing system, calculates the actual editing time for the first cut to be 16 hours. He points out that he was not sitting down completely cold when he started editing since he had viewed dailies and spent time on the set. He did not start cutting the first day dailies were available, but the production finished shooting on a Friday night, and he showed Daniel the first cut on the following Thursday morning. After the show was fine cut, it took 6½ hours of on-line editing, and then one day of sweetening and mixing the track. The show was delivered the day after it was mixed.

The CBS editing system is designed to work with Betamax cassettes, and two sets of cassettes were made for the editor. One set contained a series of selected takes from a given day just like a daily roll of film. The other set contained only one take per cassette just like the rolls of film an editor works with after his dailies are broken down. In addition a ¾" transfer was made of the dailies for viewing by everyone else. All of the transfers were made at the transfer room right down the hall from the editing room at the studio, and for this production a 1" dub was made first for safety's sake. The cassettes were made from the 1" dub, but the original 1" master was used for the on-line editing.

The off-line editing set-up consists basically of six Betamax cassette decks controlled by a computer, an editing control unit which consists of a CRT display and a light pen, and a bank of picture monitors. A display screen and light pen were chosen rather than a keyboard and/or a joystick or some other form of manual control primarily because of the flexibility of a display screen. Since it can be programmed to display anything at all, the ways in which the editing system is controlled can be continuously refined. The screen also permits the control functions to be presented graphically, making the system more accessible to a film editor who is not accustomed to working with a keyboard control unit. For example the relationship between the cut an editor is working on and the last one he made can be

presented to him in the form of a diagram reading from left to right with one area indicating the picture and another track rather than presenting the relationship simply as a series of 8 digit time code numbers. The speed and direction of the tape machines is controlled by touching the light pen to a point on a horizontal scale ranging from Rewind to Fast Forward. The light pen will command the system to perform various functions simply by touching a word or code on the screen. If you want to preview a cut, you touch the word "preview" on the control screen and then watch the picture monitor.

The real heart of the editing system, however, is the way in which the tape decks are used to facilitate re-editing of sequences after a first cut has been made. Basically a cut is assembled by checkerboarding pieces on three different cassettes with as much head and tail overlap as possible. The cut can be viewed by running all three decks in sync and having the computer switch back and forth according to instructions it received during the assembly phase. If the editor wants to change a cut by trimming or adding to either scene, he enters the information into the computer, and the computer varies the speeds of the playback machines between the sections used in order to have the right frames in sync for the revised cut. If the editor wants to insert a new cut into the sequence, it can usually be recorded on one of the playback machines in a position where it can be switched in at the proper moment. If the recutting is too radical to be accomplished in this manner, the assembly process is simply repeated without necessarily erasing the first cut.

The best way to grasp the design of the CBS off-line editing system is by comparing it to the traditional procedures for cutting film on a Moviola. The system was conceived as an electronic version of Moviola editing, and Blair says that a 15 hour training program is sufficient to enable a film editor to work with the system in pretty much the same way he does with film. In assembling the first cut, the editor works just as he would with film that has been broken down. It is worth noting, however, that the current version of the system is more or less comparable to cutting film and turning it over to an assistant to splice. It is not possible to review all the cuts you have decided to make in the assembly until the playback cassettes have been "built." During the assembly process each cut can be previewed and tried any number of ways; but once a

decision has been made and the editor moves on to the next cut, it is not possible to playback the last few cuts as a lead-in to a preview of the cut he is working on.

Once the editor has decided how he wants the first cut of a sequence to be assembled, he then builds the playback cassettes which enable him to view the cut sequence from start to finish and to play with the timing of the cuts. This is like having the assistant splice a scene or reel that has been cut and clipped together, except that the video system enables the editor to preview each individual cut any number of ways as he is deciding how to assemble the first cut. It would be possible to modify the system so that the playback cassettes are built as each decision is made, but it was felt that this would slow down the assembly process enough to be counterproductive. The system is designed to get to a first assembly as quickly as possible so that the real work on pacing and timing can begin after a basic structure for the scene has been established. The CBS off-line system is truly unique among video editing systems in its ability to facilitate refinements after a first cut has been assembled. The computer will store the information necessary for sixteen different versions of any given sequence. One of the great advantages of working in videotape in this way is that numerous versions of a scene can be cut simultaneously. All kinds of recutting or experimentation can be tried easily without making it any more difficult to go back to an earlier version. If a director asks the editor to recut a scene and then is unsure whether he likes it better than the previous version, it is generally possible to call up the previous version instantaneously for comparison.

Once a sequence has been fine-tuned it can be re-recorded onto a single cassette in its proper continuity with the rest of the story. Obviously any number of versions of the entire show could be recorded. When the entire off-line editing process is completed, the computer will provide a CMX compatible edit decision list on a floppy disk which can be used to auto-assemble the 1" master.

The CBS off-line system is essentially a cuts-only system like film workprint editing. It even duplicates electronically the way dissolves are indicated on the screen. When the editor decides to use a dissolve instead of a straight cut, he stops one tape on the frame where the dissolve is to start, lines up the other tape at the appropriate point, and enters the length of the dissolve by touching

the numbers on the control screen with a light pen. When the transition is pre-viewed or viewed in the cut sequence, there is a straight cut at the mid-point of the dissolve, and the computer generates a vertical white line that moves across the frame in the same way a grease pencil mark appears to move across the screen with a film workprint. Again it would be possible to include a special effects generator in the system which could actually execute the dissolve, but it was felt that the special effects generators available would make the system too costly. Film editors are not accustomed to seeing dissolves until the picture has been fine cut, so it did not seem necessary to incorporate that luxury into the off-line system.

Rod Daniel did not feel that the editing system was any more versatile than film editing, but he did single out several advantages it had in comparison to film aside from possible savings in time or money. One is the fact that the system is noiseless; another is the fact that the image is not subject to degradation in video editing—i.e. it doesn't get scratched or have the emulsion pulled off or become filled with splice marks

the way film can. Even more significant was the accessibility of "non-print" takes. If in the course of editing Daniel thought there might be a better piece of a scene in a take that he had not "printed," he only had to walk down the hall to the transfer room and ask to see the scene on the 1" master. In a matter of minutes he could check the action in the other take and decide whether to transfer it to a cassette for editing. With film, or course, it would be necessary to call the negative cutter and ask him to put the negative in for a daily print which could be viewed the next day in order to determine whether there was anything useful in the take. The ease of viewing non-print takes on the 1" might not be so great if the transfer facility were busy servicing several productions, but in any case it is likely to be faster than the over-night process with film.

Blair feels that the system is more conducive to experimentation and re-cutting than film editing once an editor gets used to it. Eliminating the hassle of finding trims and re-doing splices makes the editor much more inclined to try variations on a cut for the sake of pacing or impact.

Although the actual on-line editing for "Kudzu" was completed in about 6½ hours at Vidtronics, additional time was used at the editing facility to create the credits. The main title card was the only title done in the form of an actual card; all of the credits were created by a character generator at Vidtronics. The on-line was mostly done by auto-assembly using two playback machines and one recorder. All of the material was contained on ten one-hour reels—eight from the interiors shot on the stage and two from the location shoot. "A-format" assembly in which the show is edited in continuity was used rather than "B-format" assembly in which all the pieces from one particular take are laid down in their proper place before anything from the next take is laid down. B-format auto-assembly can be faster in some cases, but with "Kudzu" it was not necessarily advantageous. First of all most of the material for a given sequence was likely to be on one reel anyway, so there was not really any additional time required for loading and unloading playback machines in order to do A-format assembly. There were only three dissolves in the show and it would almost have been just as easy to

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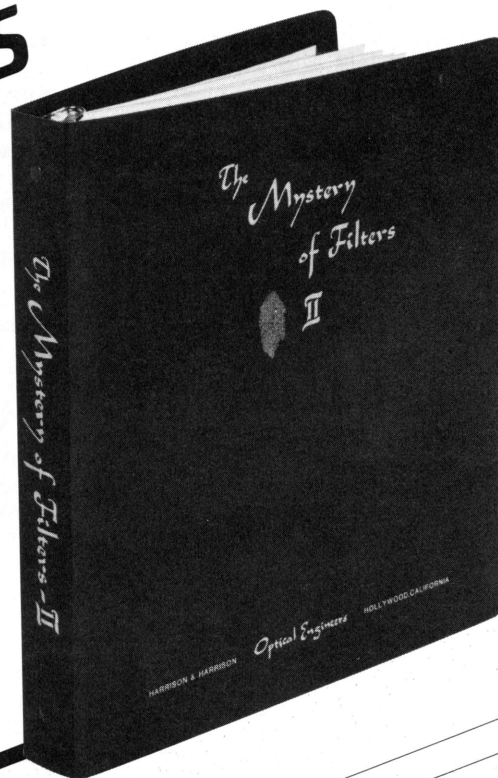
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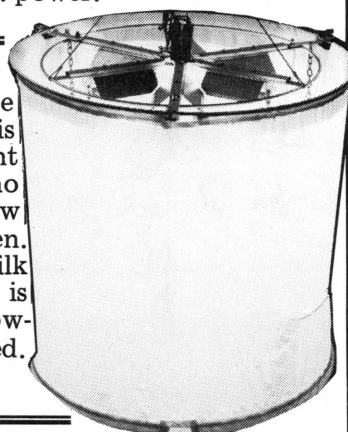


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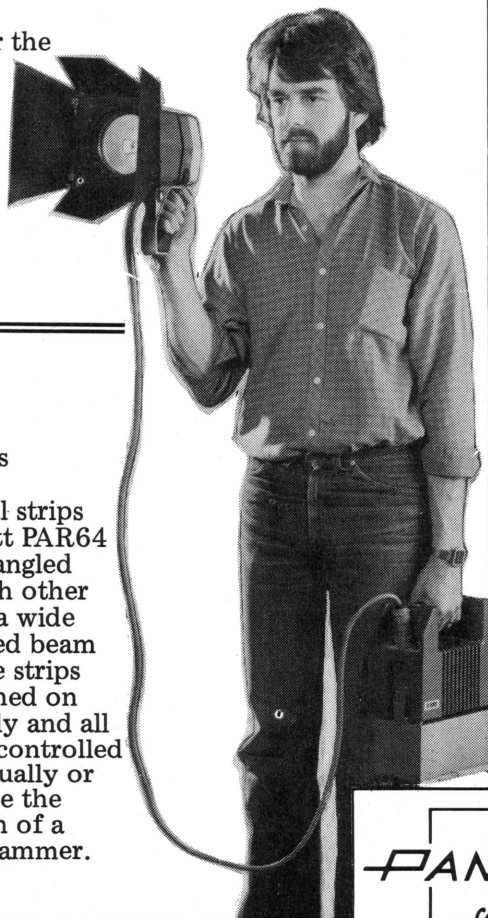
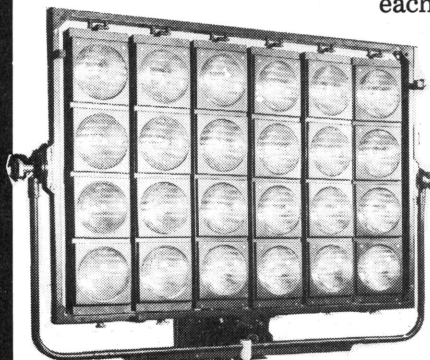
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accomplish the on-line editing with one playback machine. Most importantly, of course, A-format assembly permitted the director to make minor changes as they went along in the on-line editing. If the show were to become a series, the on-line editing would probably be completely B-format auto-assembly.

The sound effects editing and the mixing were done at Compact Video using 24 track recorders. The production track was transferred to the 24 track tape along with the time code after the on-line editing was completed. About three hours were devoted to the pre-lay session in which effects were selected and transferred onto the 24 track tape in sync with a videocassette. Then six hours were spent mixing all of the tracks before laying the final sound track back down onto the 1" edited master. The next day a 1" master and six cassettes were delivered to the network.

Everyone associated with the production of "Kudzu" seems to feel the single camera video production experiment was a complete success. Refinements are continuing to be made on both the camera and the editing system, but the production demonstrated that single camera production techniques are entirely possible with video as well as film.

A.F.I. Kline Seminar Continued from Page 682

up and the light comes on. The other is where she was at the end of the dog house, a bright beacon of white in the midst of all this blackness. Were there any special things about shooting those, or any problems lighting them?

RK: Hiding the lights was the big problem. But that was poetic license where she just disappears into nothing, and that was planned. If it didn't work it would have been a real problem. And you don't know until after the fact. And it could have been hokey. I think it worked there. The other one going up the stairway, was that when he first arrived at the house? They turn a light on down below near the doorway. And they walk in the shadows, up the stairs. She's turned on the light upstairs. I just felt that was a natural source and lack of source—I should say lack of light—as they walk away from the bottom lamp, they diminish. The light source diminishes as they go up the stairs.

Q: What kind of lighting did you use on that?

RK: The tractor light below had a regular

globe in there, but I used 1K units basically, and some bounce. I would take another 1K off of foam core and bounce it for just a general fill, call it a reference light, and when they walked up the stairs they would get into that bounce light and it would diminish as they got further away from the source which was below. And then she hit the light upstairs.

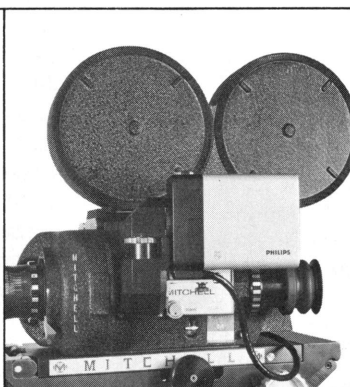
Q: I'd be curious to know if the shot in the office, after they decide they're gonna murder him, when you go way up on it, if there was any sort of thought from your part or Kasdan's as to why bring it up so high looking down like that.

RK: It's funny you should mention that. Larry had a desire to do that. And he was fought, there was a cross factor. First of all, it's an old studio, Zoetrope, and it couldn't accommodate the crane to go that high; the cranes are quite heavy, as you know. And so they tried to discourage him, telling that we'd have to shore up the floor. But he fought for that shot, and it really was effective. That goes back to what I said about Larry; something about just the feel of going up—you call it poetry, is that what you said, poetry?

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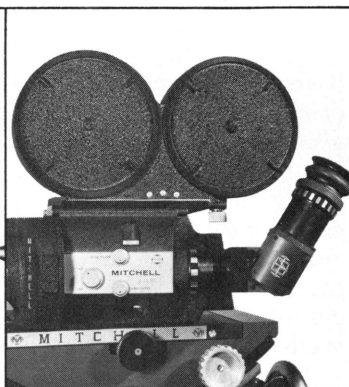
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Q: Like her disappearing in the mind.

RK: Right. There was something—an instinct tells you. That's why preplanning can be so dangerous, but then again, it can work for you, too. And in this case it really did work for him. I think it was magnificent. Yet, I can't tell you why. It's just a feel. And I think that's what film-making is, providing you have the time. Feel is very important.

Q: I'm curious about the communication between you and Lawrence Kasdan, what he said to you before production, how he wanted the overall look, and specific scenes that he said he wanted in such and such a way, and if you think what's up on the screen is what he wanted.

RK: Well, there never was anything specific in all of our pre-production meetings, but we looked at some films together, old films. We looked at some Kurasawa films. We looked at *THE HIGH AND THE LOW*, 'cause I think we're all Kurasawa freaks. We looked at an old Robert Mitchum, Edward G. Robinson film, a very obscure film that I didn't even remember. None of them really meant anything to the film. And they were black and white, nothing in color. I have a favorite film that we did run. This is not unusual to run films with directors just to get a kind of a meeting of the minds and see if we think on a parallel line. But the film I like is Bertolucci's film, *CONFORMIST*. I believe in variety. I think there are some brilliantly photographed films, but there's a sameness. Each scene itself is a work of art, but you start seeing it over and over and over again. And I find that Bertolucci is a master at variation, a variety of looks within a film. And I try to do that myself. That is why I usually recommend seeing *THE CONFORMIST*. And another film that I like is *THE THIRD MAN*, which I think is one of the most brilliantly appointed films ever made. I once worked with George Cukor, who had a phrase: *Be daring but don't get caught at it.* And I think they did that. They were daring in that film and they didn't get caught at it. And quite often people are caught at shooting through the armpits and things like that. We viewed films together and kind of got on the right wave length. And again, nothing really happened until we actually got to that scene. And we would clear the set, rehearse it thoroughly. I liken my relationship to a director like a caddy is to a golfer. Quite often we can make a recommendation as to which club to use. We know the

course better sometimes. We've been over the course more often. And even though he does the shots and it's his thinking, while he's swinging we might see something maybe he should have followed through a little more. We can whisper to a director, rub shoulders. We rub shoulders all the time, just like a caddy would with a golfer. It is that kind of relationship where I think actors, too, confide in cameramen and directors. And... it's not only their hairdresser that knows; we know their little foibles and their little craziness, which they all have to some degree or another. They're not the easiest people to be around but they're pleasant. It's a great challenge. So we accommodate them, we look out for whatever we should be looking out for. Hopefully, we are there to collaborate and not just work for. And I feel that way about my whole crew; we all collaborate. Hopefully, we know what he's after, and if we see that he isn't getting it we can confront him with that. And if he accepts it, fine. If not, it's something else.

Q: How precise is your previsualization of a lighting setup?

RK: I rarely even read a meter. During this rehearsal I try to take just five minutes or so and light key lights. Like, if it were a room I would light the exterior. Just throw a source through. Or, if it's a night shot, I would kill the overhead lights and light a lamp, if it were to be lit. So that during the rehearsal you get accustomed to a mood that could be the mood you will utilize during the filming, during the lighting. And so now, during the rehearsal I think we all feel it. It might be entirely wrong when you see how the rehearsal came out. So the flexibility of the director working with actors has a bearing on how the look will be. So I do not say 200 foot candles. I might resort to that when my assistant cameraman says I cannot carry the focus from here to there. Then I'll do something, I'll build up. But I try to be as natural as possible and photograph this exactly as it is. As I see you it's not the most flattering light on your face—it's a bit racony—so I would probably clean that up a bit in the closeup. But in the long shot I think it would work quite well as an overall effect.

Q: I just wanted to ask you about ONE FROM THE HEART, the way that was photographed. How do you feel about the way you have your film camera right next to your video camera monitor.

RK: It could be helpful. I mean, I've done

it before. I've done films where we've had the slave unit that works right through the lens, and I find that there's a danger there. First of all, people start studying it much too closely. And before you know it you waste time and become very mannered. That's the risk I would say. I just think you have to trust your own judgment and experience, and that's everybody. Unless it's an effects film. Now when I did *KING KONG* we had to use that in order to combine certain elements in the special effects photography. And it was necessary then, but very time consuming. We all get hooked on television. There's some crazy attraction to that little box. And it happens on the set when you make it available for everybody to look at it. Before you know the crew's looking at it and they're running it back. There are good reasons to use it. But I don't think it's a method of lighting. I wouldn't light through it.

HS: Also, the difference in quality on the sets that you look at, where you're not looking at it on the monitor in the truck, where you can get some idea, but these little units are not really that good. Although Coppola's equipment's another story. He had some pretty fantastic equipment. But I did see those sets and I saw the way Vittorio was doing it, and it was really interesting the way he was using very much the technique that you talk about with your soft lights and then your rimmers and that sort of thing. But he used a lot of overhead soft light. That was his basic light. And then he picked 'em up with the rimmers and all of that. He had a problem in that the stages were too small for the sets. They were built right up to the edges of the sets.

Q: I noticed in the jail scene, when he was talking with the officer who arrested him, the camera movement went around him to one side and back around to the other side, and so forth. I was wondering about the motivation for it, whether it was, again, those feelings that maybe the director had, or you have.

RK: The dialogue really wasn't the most sparkling dialogue, and it had to be just flavored a little bit. And that, I believe, did it. We knew it was a long chunk of dialogue, and something had to be done. It was discussed before, but the finalization was right on the spot. I would say it was done from feel.

Q: In THE FURY there were some of the most amazing crane shots I've ever seen

over the tracks and into the window. Can you talk about some of that?

RK: A crane is something that is as good as the people using it. It can be a weapon against you. I love the Chapman crane. I think it's probably the only piece of perfect equipment ever developed in the industry. I don't know of an improvement that could be made, but if it's not used properly—such as, the grips that function, the driver, the camera operator—it could kill you. It could just be a total disaster and a waste of time and look awful. And in that picture we did use it extensively. A lot of that stuff was a combination zoom and crane, the shots you're referring to into the windows. But that was the Chapman crane, and it was done, most of it, in Chicago. Some was done here, though. Crane shots are pretty hard to define. It's amazing how sometimes you'll see this huge crane which reaches what—28 feet, something like that, 30 feet with an extension—and just a little camera on top. Or just one big lens. That picture had a lot of it, but some of that was process photography, too. Some of those crane shots were really done with trickery in *THE FURY*.

HS: Like Dick says, timing is very important. You have to have a crew that really times all your moves out perfectly. Otherwise, you're in trouble. The shots don't look good and they take forever, and one person on the crane is fighting another. It's really important to have a good crane crew.

RK: I recall one picture that I did, *GAILY*, *GAILY*, and the end shot was a very long crane shot on a stage and just going in and in and in. And it looked awful. It was just badly executed. It was the fault of the operator for not calling our attention to it. We redid it, and it was equally as bad. The optical printers shifted it just enough and they straightened out the meandering. So there's always something you can do. In this case, we couldn't shoot it again so we resorted to that.

Q: ON *FURY*, would De Palma say I wanna start here on crane and end up here, and leave it to you to work out the mechanics of it?

RK: I had no time to prepare that picture. I was just finishing *WHO'LL STOP THE RAIN*, and my first encounter with De Palma was in his office. And on the wall, every wall, was covered with sketches that he had drawn. He had preplanned

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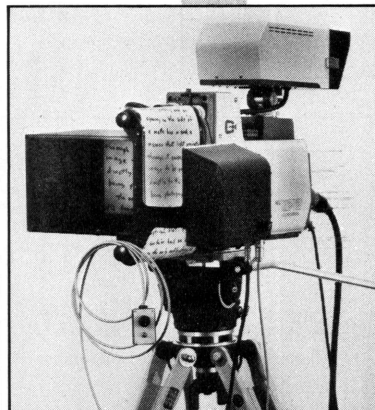
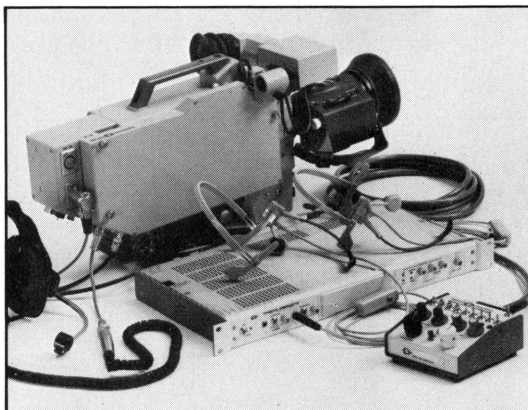
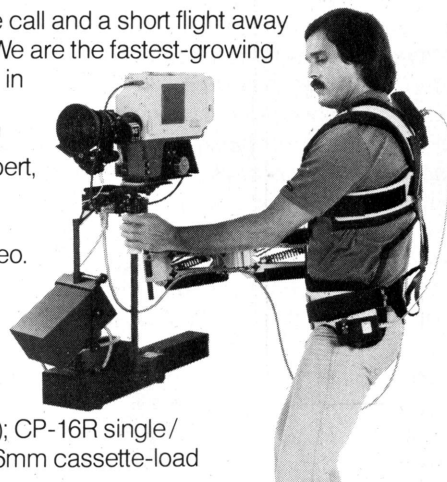
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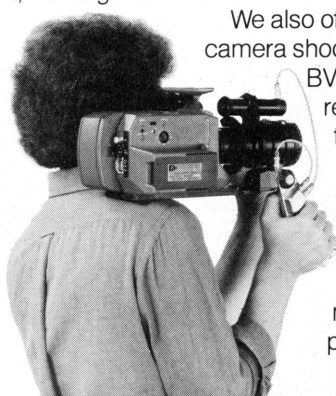
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every single shot. I said, "This is gonna be a cinch," with his little stick men. And then he had them reduced to a small scroll, each day's work, and he would just carry it. About half of the first day, and he'd look to see. "I want this one." It was becoming very mechanical the second day. And I made a suggestion to him that maybe we ought to be over here... okay, let's be over here. Well, after about three days we never saw a sketch again. And it was then going back to the system of rehearsing, looking at it. *THE FURY* really had a lot of flow. And on that I've had a lot of experience. Howard and I come from the old filmmaking tradition of process photography, which isn't used too much any more, and our backgrounds are in that. In the olden days every film had some degree of process photography, rear projection, and it's just second nature to us. And it can be used effectively. And I introduced that to Brian and he loved it. And he really found some great areas to use it in. He was very creative in that area. He really has marvelous instincts. And I told him, "I think you're burying your instincts by preconceiving these shots." He's an extremely creative person. And I think that he's very technically oriented, too.

Q: You know the shot in *BODY HEAT* where he puts on the hat and the window rolls up? What did you do?

RK: It was very simple. I had a shutter on two different lights: her in the car and he's standing outside. As the window was raised I would dim the shutter on her, on Kathleen, which made her dark and made a mirror out of it, and then bring up the light on him. So it was just a matter of one off, one on.

Q: How closely did you work with Lawrence Kasdan. Is he in the camera a lot? And do you encourage directors to do that? Also, could you comment a little bit on working with operators? Are these operators you've worked with before, so that you say well this is the opening frame and that's the end frame it's double shot and you can just sit back and know that it's happening.

RK: I don't operate myself but I do design the shot with the director. And my operator—Howard knows him quite well, too—We've been together many years—has marvelous antennas. He hears everything and he can emulate what we're after. And he's so good he'll

take the first rehearsal and I know exactly that he's getting what I intended it to be. But during the lighting I light through the camera. But if while I'm lighting I see something that could be beneficial for what we're after, I'll call Larry over to look through and see, to get his opinion. He might agree or he might not. So it is collaborative.

RK: Getting back to the color temperature of your lenses and different temperature of cooler and hotter, how do you actually see the different colors? What do you look for?

RK: Well I shoot a test... I would shoot Howard, as an example, with a neutral background. I always get a neutral flesh tone in there, somebody without any makeup, preferably. And set the camera roughly six to ten feet away. And light it just once. Then I shoot every lens at the same stop, and have it printed on the same light, and that way you run it together and you can see if there's a difference in color value or stop. You can test the lens thoroughly that way. You also check it for focus and other defects.

Q: The night photography was very effective, but many of the shots were quite

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dark. Was there enough reference light there? Or are there other shots and prints you substitute for a television print?

RK: Television seems to hold its own. It's only when something is terribly underexposed that it does milk up on television. But if you have that little reference kicker, it should hold. And I think BODY HEAT should hold up on television quite well. Kicks like her white outfit. Kickers of some sort. I once did my personal study of television photography. I'm not referring to I LOVE LUCY, but the dramatic shows. I don't care what the picture is, usually the transmission of a picture that was not made for television is very acceptable on television. I remember Howard did a marvelous thing, the Judy Garland RAINBOW. I was on the set one day visiting Howard, and I was watching the way he worked, and it was the way you light a feature. I saw it on television and it looked brilliant. I say that you light it the same way you would light a feature. I like television and I think it's a very important medium that is abused by the people in it thinking it's a second rate medium. It certainly is not.

Q: What did you do on the film in terms of Post Production? There were certain scenes where I would see it go a generation. Then I'd be looking for a dissolve or some kind of payoff.

RK: There are a couple where a microphone dipped in and we had to blow it up. I think there were one or two cases where we should have been closer. We weren't.

Q: The scene in the beginning where you see the fire in the background out of the window...

RK: That was a miniature on the stage, just a little flame of light about a foot-and-a-half high. As you know, Zoetrope is a very small studio and we were pinched. And then we had cutouts of streets, houses, and some real greenery, with fans blowing it so it did look real.

Q: When you blew up that first incendiary device, did you actually blow that up?

RK: We did yeah. We had two cameras, and it was just one cut of the explosion and that was it. An effects person did that. He was a good man. Oh, when the boathouse blew up at the end, three cameras were trained on it: one going at

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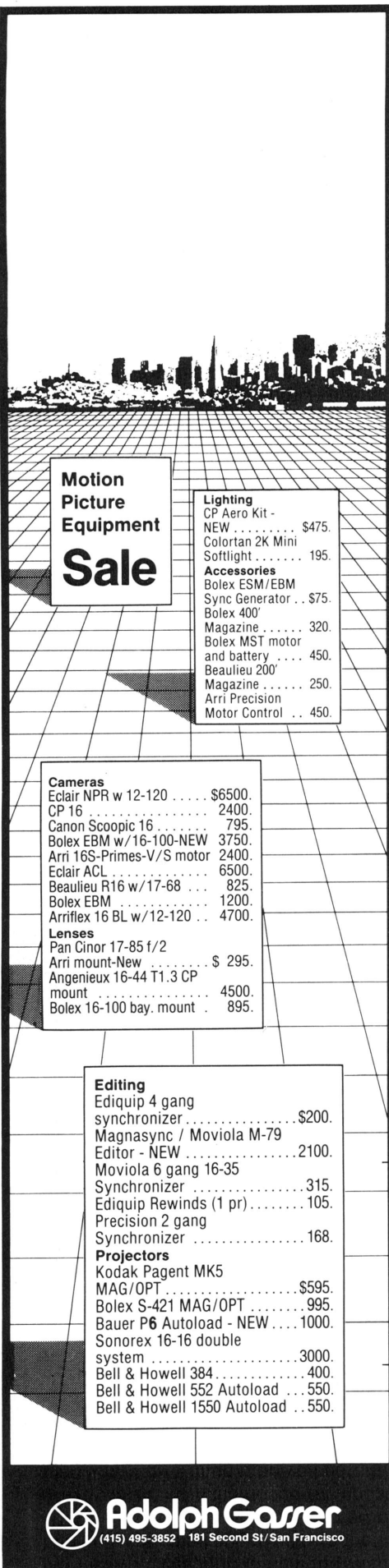
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Q: How did you rig the back door with the flashlight in the basement of the warehouse?

RK: That was a hot shot flashlight. I used that same flashlight on KING KONG, the ones they used in the jungle. He wears a hidden battery. It was squared rather than just the little dot of light. I know it's not unnatural to have a dot of light but it doesn't read well, and I like a large spread. The whole shot was lit with that. It just had a reference light and then that lamp itself illuminated the whole scene. It's a projection globe out of a Sawyer projector. It's about three inches in diameter. And it's very... it's one of those quartz halogen lights, and it gives out a tremendous amount of light. It happens to be the right Kelvin. I carry it wherever I go.

Q: In preparation for color correcting the lenses, do you do that by using slides behind the lens? Or do you have the lab correct that for each?

RK: I do that myself. If I deem that a certain lens is not the right color, is not in keeping with all the other lenses, then I make the correction with the lights, not filters. I try to put as little in front of the lens as possible. We really use nine lenses plus a zoom. It's easy to remember that a 25mm or a 50mm is a little bit on the blue side, so you add a drop of yellow to it.

Q: Would you ever flash it?

RK: There are times when I do. Howard's an expert at that. I must say, I've learned a lot in flashing. I did some of the original flashing on CAMELOT, where I personally flashed it myself on the stage. That's before labs were doing it. I would do pre-exposure, and I would set it up in the white card. I had my computations figured out. The purpose of flashing was to mute, to soften the colors. And I must say, there was tremendous resistance from the studio. ...It was very hard in those— that's roughly 18 years ago— to do anything different. They thought color pictures should look like the logo for Technicolor. And they were paying for color, they wanted to see color. But they've changed since. I felt that for once a film of that type shouldn't be an over diffused looking picture but should be muted in another fashion. I researched and shot stills, first of all, and flashed it. Worked out very well. And

then I experimented with doing it on the stage. Had a little corner of the stage with my little setup. And we would pre-expose the film at a predetermined exposure, then rewind it. And of course, you have to mark the frame very carefully. At that time my assistant, who is now doing a marvelous job as cinematographer, was Frank Stanley. Frank was able to mark the frames properly so that it went through the camera on exactly the same registration mark, and I used measured stock also.

Q: Did you flash for the exteriors on a picture like WHO'LL STOP THE RAIN, to cut down on the contrast?

RK: Yes. That was done by the lab, though. Particularly the last sequence, where he was at the train tracks. It was meant to be a whiteout, to look that way. And that was a combination of fog filters, overexposure and flashing.

Q: What about the opening shot of WHO'LL STOP THE RAIN, where it ran into the credits?

RK: That wasn't flashed. That was partially the printing, taking the color out of it and then using some gels. I think that's where Michael Moriarity was in a very strong shaft of sunlight, and I accentuate that with a golden gel, which I knew would be too strong. But then I backed off in the printing. I took gold out of it, so that everything else still remained but a lesser value.

Q: Is fog always difficult?

RK: The worst was KING KONG, where we fogged in all of Catalina at one point, or parts of Hawaii. I mean, we had three boats with Navy foggers and it was just incredible; it was like we were at war. Fog is not easy at all. It's the toughest element, I think. If you go and do it once, that's fine. But to match a whole sequence, very difficult to make it believable. And it's uncomfortable, too.

Q: There's a scene in jail in BODY HEAT, right after they first talk about murder, and it's a wide shot. There's strong light coming in from very high and you can see the shafts scooping through the shot. Did you put something in the air so that it could become more apparent?

RK: That did have some smoke. That had a very light smoke, and then to try to create a cathedral effect of some sort.

**BLADE RUNNER DESIGN
AND PHOTOGRAPHY**
Continued from Page 687

oly. If one particular company could become so large that it develops into aerospace, it develops into the space probes looking for mining and military areas. Another side of that company could be genetics and genetic engineering which could easily lead to the development of the first human clone."

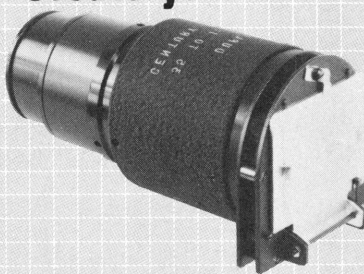
"To do a film like this you can choose to go in one of two directions. You can choose to do a film which is about genetics and genetic engineering, which is a very serious subject. A genetic explosion is happening right now. If it develops in the way that science has progressed since the turn of the century through the 80's, then we're going to see all sorts of things affected, probably to the good. But we decided not to do that kind of movie. We decided to use certain broad elements from that kind of situation and create a kind of comic strip; so this film is not too serious. It's not a film about genetics. It touches on it, but it isn't about it. The story situation has arisen because of it.

"Also this film is not a warning in any sense of the word. At the moment I choose not to do films which are loaded in that way. This film is, hopefully, good fun. The films that have fascinated me the most in the last couple of years tend to have been films which are derived from comic strips. I've chosen to go in that direction, and therefore there is a lot of broad strokes, fast bold action, and colorful characters."

Syd Mead also makes it clear that the film is not intended to be a realistic vision of the future: "I was hired as a consultant to produce exactly what they wanted for that story, for Ridley's visualization. The next movie that I'm hired to work on might involve a vision of the future that is slick or marvelous or has a slight kink in the whole framework so it looks a certain way, but I'll do that just as deliberately. It has nothing to do with my own personal view of the future."

Work on the design for vehicles and settings for **BLADE RUNNER** began very early while the script was being developed, partially because of Scott's own background. "I was a designer, trained as a painter, then an art director, and then from art direction drifted into graphic design. Graphic design opens up all sorts of things because it's photography, film and editing. Scott relies on his drawing ability to communicate his ideas when he is preparing a film. According to David Dryer, one of the special photographic effects super-

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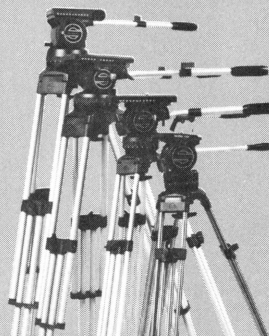
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visors for the film, "Ridley is such a good artist that you sit down and have a meeting with him and he draws it more than he says it." Syd Mead also found Scott's ability to draw very helpful: "The nice thing about working with Ridley is that he is an accomplished artist himself. He draws very well and enjoys drawing. He could do a line sketch mood pen drawing, and I could build on that with a discussion. As a result we hit most of our design visualizations within two or three tries, and a lot of them on the first try." Scott comments, "One picture is worth a thousand words, you know — even one scribble, one sketch. I spent a long time training so I can draw very specifically. I find it's more productive than an in-depth two-hour conference."

Scott did some of the preliminary storyboarding for the film himself and then had a team of three production illustrators working on the film: Sherman Labby, Mentor Huebner, and Tom Southwell. In addition Scott derives a lot of ideas from illustrators and designers working outside the film industry.

"I always spend a great deal of time building a library of weird and wonderful illustrators. That's usually where I begin a project. It began haphazardly, but I found myself totally enthralled with this unusual world, and that's led me in the path of collecting odd illustrators, odd pictorial references to things. So I try to dig out those individuals first and that becomes, along with the development of the script, the design side of the film."

With *BLADE RUNNER* he enlisted Syd Mead, who had recently published a book of illustrations and who had worked as a design consultant briefly on *STAR TREK—THE MOVIE* in addition to being an internationally renowned industrial designer. Scott believes that the best place to start in designing a futuristic picture is with designers working in industry. He will commission drawings and then adapt them to his own purposes with the film. With Mead he began by commissioning designs for five or six vehicle types.

One of the vehicles was the "Spinner," a kind of flying car that can hover or fly at speeds up to 300 or 400 mph. Mead describes the evolution of the design for the Spinner: "My first comment to Ridley, when he asked what it should look like, was 'It should be something other than a rotating blade or helicopter or folding wings. That's been seen in *Popular Mechanics* for probably 20 years.' I said, 'Why don't we do a very clean, all enclosed vehicle that's a car that really does fly.' He liked that idea,

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so I started designing it using the aerodyne principle of an enclosed lift." Using what is basically a valid aerodynamic principle and assuming certain technological advances yet to be made, Mead designed a vehicle which could seem plausible. The look of the vehicle was based on a concept of how it would actually work. "We were proposing for the Spinner—as a technological supposed base—that you have turbines inside the car and you vent the exhaust down to the back and to the forward part of the car just to balance it on its center of gravity. So it looks believable. There are fans underneath, and the rain and the dust blow and it lifts off the ground."

The element of believability was a key factor in the design of vehicles and artifacts for the film. "The difficult part of designing for a film is that you have to use audience in-head memory. People will believe something is real only if it is done right and compared to what they think it should be. The big difference between designing commercial products and designing for movies is the large concession you have to make in films simply to what people will probably believe is a valid rational object for the time frame you are shooting for. And I don't think you can really make a firm rule about it. I think it has to be guess work right up to the time people march into the theater. With a commercial product, a company invents a new object, they advertise it and the public can buy it so it becomes real. It may look completely different than anybody would have expected it to, but it is real. It is on the shelf, and they buy it; and they have to believe it for that reason. In a movie, if you tell people you are 100 years in the future and people are still walking around with shirts and ties and a funny kind of 5-wheel bicycle, you have to work to make that look believable. Otherwise they will laugh. They won't believe that the car can fly. You have to make it look believable, and you have to use the in-head memory. I learned that a little bit just by working with corporations trying to merchandise stuff, because they'll do pilot tests. For example when they tried to introduce movie cameras that had flat stacked reels, people didn't believe they would work."

Each vehicle was designed to conform both to the overall sociological concept and tailored for the specific character who owned it. "I started off with clean concepts, as I normally would for a commercial client. Then we worked out a sociological reason for the look of the movie and the things almost started to build themselves. For in-



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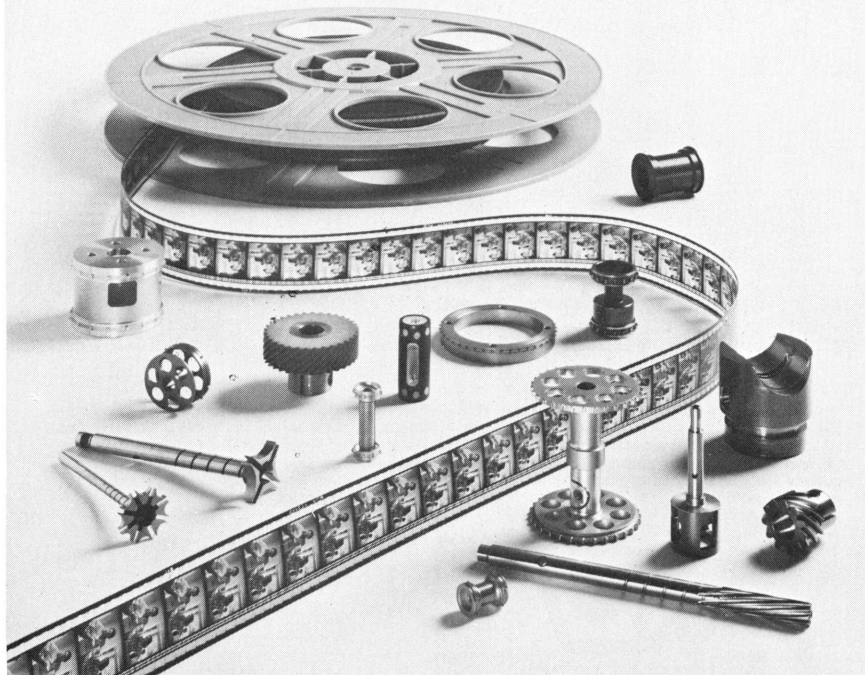
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stance you'd start with the air pollution and you'd say, 'If that's true, then they would probably have to have bigger air conditioning units.' The original car didn't have that so you get a big lump on top. More congested traffic and you get bigger bumpers, and you add light packages on top of the trunk so you can see them better."

"For Sebastian's truck, we figured he was a tinkerer who had gotten a commercial chassis and covered it. In the original script he was an electronic pet doctor and he hauls electronic pets around in his van. He needed a closed van, so we patched together a truck that he would have built 40 years from now. He might have gone to a junk yard, so we said, 'What's in a junk yard 40 years from now?' We thought up odd shaped plates and molded pieces that he might have picked up from a junk dealer and welded together with neoprene or some odd kind of glue. The truck has that odd beetle shaped back to it because it has all those plates glued together."

Once Mead had worked out the concept for a design of a vehicle or object or setting, he would do a color illustration about 10" x 15" in size and with enough detail not only to satisfy Scott but also to enable Lawrence Paull and his staff to build it. He describes his role in the production as that of a "visualizer" and recalls an instructor he had in art school named Dorothea Redmond who was a visualizer for one of the studios. "She would do these quick tempura sketches so the lighting people and the director and everybody involved could sense the way the shot was going to look."

Mead's efforts to draw the vehicles the way they would look on the screen led to his renderings of the streets and buildings and even some interiors. In his drawings of the vehicles he began inventing reasons why the buildings in the background should look a certain way. Once it was determined that the production would be using the New York Street at the Burbank Studios (appropriately the site of so many Warner Brothers Bogart and Cagney classics), Lawrence Paull provided Mead with photographs of the existing facades. "I made elevations and tempera sketches and started again this overlaying process of putting pipes and ductwork and signs on the buildings."

Once these renderings were completed and the production staff began constructing the sets, Scott had Mead design some of the interior sets such as Deckard's kitchen, bathroom and bedroom and Sebastian's working laboratory. "Again the same theory: you had a

space where somebody lived 40 years in the future, and they would have things stuck around the walls that we don't have today. That was the problem, to invent them. What would an automatic fork cleaner look like in 40 years or something that makes food in little bunches or puts sauce on it and serves it already made. And you'd have something sitting on a counter that didn't look like anything you'd ever seen, but it had to be a kitchen appliance.

"Ridley insisted on a kind of strange ivory color as the underlay for the kitchen. When Bakelite and the first Moderne stoves and refrigerators came out, they had this strange ivory color with chrome trim and produced a sort of Moderne Deco kind of look. And it looks particularly nasty when it's got grease and dirt on it. It looks just really grungy, and he wanted that look. So I rented them with that ivory tone, and we ended up with this molded vacuum formed kind of look to the whole kitchen set.

Scott wanted Deckard's apartment to look as though a bachelor lived there. For instance, as Mead puts it, "You tape something on the wall to hold something. Rather than having somebody come in and re-do the cupboard, you just put a new patch on. The bathroom was much the same. Ridley specifically wanted a pullman type bathroom, as if the owner had moved in a complete unit into an old building and just hooked everything up. That's why it had a stainless steel look to it. In each case there was a specific visual target we were after. In the kitchen set we had some plates there we left off. I don't know if the actual set retained that feature, but there was circuitry behind and wires hanging out with a little black end on them like they had shorted out and he just tore the whole panel out and said, 'The hell with it.' The whole thing had to have a messy patina as if the cleaning lady hadn't been in since last Friday or something."

The same approach to visualizing the future is evident in the costumes designed by Charles Knode and Michael Kaplan. Scott wanted to avoid what he calls "the diagonal zipper and silver-hair syndrome." Dave Dryer aptly sums up the approach: "One of the principles in the design of the film is that while it is 40 years in the future, it is also 40 years in the past. So rather than having people running around in shiny suits with brilliant zippers on them, they took 40-year-old clothing styles. And it has very much a Philip Marlowe kind of detective look to it. And an Art Deco look to a lot of things."

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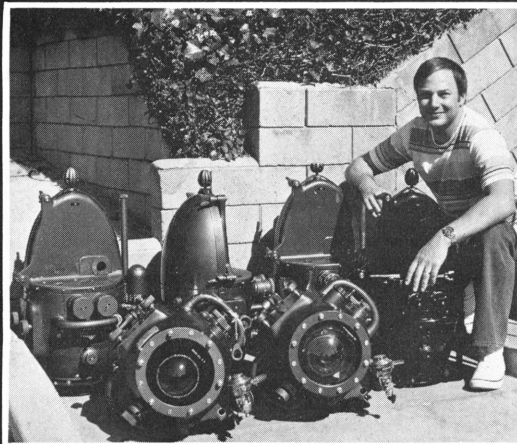
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The production design for *BLADE RUNNER* appears ultimately to have been rooted less in sociology or a vision of the future than in an appreciation for the style of the old Sam Spade/Phillip Marlowe detective genre. The starting point is the desire to create a certain aesthetic and emotional texture—the nitty-gritty, funky world of a hard-boiled private eye; and the sociology is conjured up in order to give the design a logic and consistency. This is of course completely in keeping with the script, which is a deliberate reworking of the classic detective thriller and has one foot just as firmly planted in the past as the other is in the future. And the same thing applies to the photography.

CRONENWETH'S PHOTOGRAPHY

Jordan Cronenweth's photography for *BLADE RUNNER* with its strong shafts of light and use of backlighting immediately evokes images from classic black-and-white movies, and it is no accident that it does. As Cronenweth explains, "Ridley felt the style of photography in *CITIZEN KANE* most closely approached the look he wanted for *BLADE RUNNER*. This included among other things high contrast, unusual camera angles and the use of shafts of light."

David Dryer, one of the special effects supervisors, worked with black-and-white prints of most scenes in the film for one reason or another, and he almost wishes the film could be released in black-and-white. He thinks it seems to have even more depth and style in black-and white. Needless to say this would not do justice to Cronenweth's work, but it is an indication of the way in which the photographic style of the film harks back to classic movies. Like every other aspect of the film Cronenweth's photography takes the classic conventions one step further, and not the least of his tools in doing this is the use of color or even the absence of color where it might normally be expected. "We used contrast, backlight, smoke, rain and lightning to give the film its personality and moods. The streets were depicted as terribly overcrowded, giving the audience a future time frame to relate to. We had street scenes just packed with people. . . like ants. So we made them look like ants—all the same. They were all the same in the sense that they were all part of the flow. It was like going in circles. . . like going nowhere. Photographically we kept them rather colorless."

If the people on the streets were colorless, the New York Street set was

anything but: "The character and consequently the lighting of the New York Street was achieved through the use of dozens of neon signs. We rented a number of them from ONE FROM THE HEART. In order to achieve a photographic reality, the on-camera neons were often on dimmers set at a level just above where they would start to flicker. At the same time the off-camera neons were used as the primary source of light whenever possible by leaving them at their brightest level. When the existing neons weren't sufficient for either illumination or dressing, we would simply create new ones on the spot and place them wherever we wanted. An example of this was placing letters on the side and strips on the interior of a bus that Harrison runs through in one scene. At one point we had a seven-man crew doing nothing but overseeing the neon signs. There were many more neons than there were dimmers, so we had to rob Peter to pay Paul at various times."

Cronenweth would supplement the neons on occasion: "What you needed was some accent lighting to make the range stand out, to glisten the street if necessary and to highlight objects or people. Lighting the set was a simple matter of using backlight in conjunction with the ambient light."

The neon lights were bright enough in one instance to enable Cronenweth to do some high speed photography: "In the sequence in which Harrison Ford is chasing Joanna Cassidy's 'Snake Lady,' the script calls for her to run through the plate glass windows of a store. The art director built a storefront situation appropriate to the action, but when it came to dressing it Ridley was very unhappy with the first attempt. They tore all the dressing out and a week later presented a new interpretation, but he still hated it. Ridley himself finally had the wonderful idea of taking the neon signs off the New York Street set and placing them in the windows of the stores. What developed was something that really worked. We then photographed the chase with multiple cameras running at various frame rates — normal and above normal. We had to deal with a pulsing effect which doesn't occur when photographing neons at normal camera speeds, but definitely occurs at higher frame rates. We lived with it by using the pulsing as an element of the chase."

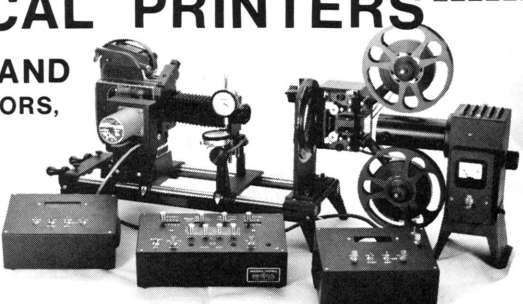
Another striking use of colored light is the scene in the toy room where Deckard encounters Pris, one of the replicants. She is made up with white make-up, and the scene is lit with rose colored light. Colored lights were also

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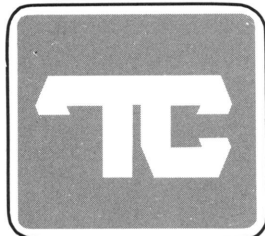
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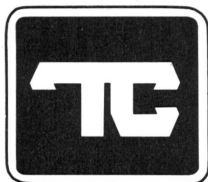
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used occasionally for the light effect in the replicants' eyes: "One of the identifying characteristics of replicants is a strange glowing quality of the eyes. To achieve this effect, we'd use a two-way mirror—50% transmission, 50% transmission, 50% reflection—placed in front of the lens at a 45 degree angle. Then we'd project a light into the mirror so that it would be reflected into the eyes of the subject along the optical axis of the lens. Sometimes we'd use very subtle colored gels to add color to the eyes. Often we'd photograph a scene with and without this effect, for Ridley to have the option of when he'd use it."

In discussing the photography of *BLADE RUNNER*, however, Cronenweth emphasizes that technique per se is not the most important consideration. "The thing that was unique was not the equipment or the gels or the intensity or the hard or soft light. It was the concepts behind each situation telling the story. Since the film is set in the future, unusual sources of light could be used where one would not accept them in a contemporary setting. For example many umbrellas carried had fluorescent tubes incorporated in their shafts providing a light source which could create a glow in the faces of the carriers."

Cronenweth is particularly emphatic about backlight and contrast. "I can never use enough backlighting. It's just that some directors want to see the face. I keep telling them that the audience only goes to see the sex." Cronenweth is as interested in creating a mood or an effect as he is in lighting an actor's face. He tends to use soft frontlight with a hard backlight, although he says, "I love a hard light in the face if it is overexposed. I think that's beautiful. It's different; it's unusual. It's exciting; it's violent."

"*BLADE RUNNER* is a piece that calls for extremes. It's naturally a wonderful vehicle for this kind of lighting. It's theatrical, but it will be very real in the film. In this film I think you'll just accept it. It transcends theatricality."

In addition to using soft frontlight, Cronenweth often lit faces from below. In addition to the glowing umbrella handles he made use of water or reflective surfaces to provide uplight in several scenes. The combination of warm soft uplight in the foreground with hard backlight and smoke in the background is probably the most characteristic feature of the lighting style for *BLADE RUNNER*.

The other key ingredient in the photography of *BLADE RUNNER* is the use

of shafts of light. "The shafts of light was an idea that both Ridley and I had happened upon independently and had talked about. We shared that concept, and it became one of the major themes of the film photographically. We used it over and over again in different applications. One way we justified the constant presence of shafts of light was to invent airships floating through the night with enormously powerful beams emerging from their undersides. In the futuristic environment they bathe the city in constantly swinging lights. They were supposedly used for both advertising and crime control, much the way a prison is monitored by moving search lights. The shafts of light represent invasion of privacy by a supervising force, a form of control. You are never sure who it is; but even in the darkened seclusion of your home, unless you pull your shades down, you are going to be disturbed at one time or another.

"After many tests with various units, gaffer Dick Hart came up with the most effective light to do the job. That was a Xenon spotlight commonly used for night advertising and sports events. This concept gave us some wonderful opportunities. For example there's a late night scene in Harrison Ford's apartment kitchen, played with the lights out. Harrison has just had a hell of a struggle with one of the replicants. Having barely survived, he is now standing near the refrigerator which has a clear plastic door. The only light in the room is from the refrigerator. Sean Young is standing by the sink, which has a window above it. She is illuminated by a soft backlight through the window and by the last traces of light filtering across the room from the refrigerator. Occasionally one of the beams of light cuts through the sink windows and glows the room just enough to read Sean's face.

"Naturally," Cronenweth continues, "to get shafts of light one must have some medium, which necessitated the use of smoke. The story lent itself very well to it, in the context of a highly polluted environment. It was very interesting to work with this constant atmosphere. Smoke is wonderful photographically, but not without its problems. Its hard to control, mainly due to drafts; and a lot of people find it objectionable to work in. Beyond this, it's important to keep the smoke level density constant, as a very subtle change in this density can result in dramatic changes in contrast. The only practical way to judge smoke density is by eye. I find that a good density is just before I lose consciousness."

In situations where smoke wasn't used as heavily, Cronenweth wanted to maintain the same texture; and he accomplished this by using low contrast filters. We changed the filters in conjunction with the angle of light and density of smoke. The stronger the backlight, the lighter the filter."

Cronenweth particularly enjoyed photographing Sean Young, the leading lady in *BLADE RUNNER*. "Sean has wonderful light, creamy, highly reflective skin, among other beautiful features. She also wore her hair up for a good part of the picture, enabling me to light her neck with hard backlight while lighting her face with soft frontlight. My favorite close-up in the film is the shot of Sean in the Voight Kampff interview. She is holding a cigarette in her right hand, and the key light was at such an angle so as to strike only her hair, neck, hand and the smoke of the cigarette."

All of the sets for *BLADE RUNNER* had ceilings in them, and some were built very low to enhance the feeling of containment, a motif particularly well suited to the anamorphic format. "We had to light from the floor or through the windows. There's a lot of night photography lit through windows. The sources would vary. They could be anything including searchlights, signs, direct light, indirect light, colored light, or lightning. In Harrison Ford's apartment, we created zones of light that illuminated automatically when one walked in at different levels—an energy saving device of the future perhaps. As the depths of the apartment were penetrated, more lights went on until finally the entire place was illuminated. This effect was mostly lost, however, in the final cut."

Perhaps the most interesting set was Tyrell's office. According to Cronenweth, "Tyrell's office was one of the most exciting to work in. It was very large—approximately sixty feet long by thirty feet wide—with three huge windows along one side and structural ceiling supports rising from a shiny black marble floor. The walls were gray cement and the room was virtually colorless.

"The scene called for the room to be illuminated by sunrise. Outside the windows we had a front projection screen upon which was projected an 8 by 10 plate of the futuristic city at sunrise that Doug Trumbull had created. This enabled us to photograph the players walking in front of the lower part of the screen and gave Doug an opportunity to later create a background with movement in it for the upper portions of the screen area. We had to coordinate the

color of the set to match the color of Doug's sunrise. Sunlight was created through the use of arcs outside the windows and amber gels.

"At a certain point in the scene, Tyrell, in order to reduce the light level in the room for a test, presses a button causing enormous tinted shades to descend over the windows. The 'shades' were actually put in later optically; however the effect of the shades being lowered had to be created while photographing the scene. To accomplish this, Carey Griffith, the key grip, built a rig that would allow a very large sixty neutral density filter to slide down over the six arcs being used to simulate sunlight."

The set for Tyrell's office was also redressed to serve as two other sets. It was used for Tyrell's bedroom, which was photographed in flickering firelight; and it was used as the Tyrell Corporation interview room, which was photographed in bright white shafts of daylight. According to Cronenweth, "It looks totally different in each situation, and yet it's the same set. The flickering for the firelight was created by arcs through torn strips of silk and dubotine—torn strips of silk for transmission and torn strips of dubotine for shadows."

The most unusual set for the film was the "Ice Room" set which was built in a meat storage locker in order to create the effect of a refrigerated genetic engineering laboratory. The ceilings were hosed for five days to form icicles, and then the crew shot for two days at 7° below zero while it was 98° outside. Cronenweth started out using arcs to light the set, but soon discovered that the arcs were using more oxygen than was coming into the room except when the door was open. The air began getting bad enough to necessitate changing to HMI lights. The set had translucent walls along one side so that it was possible for Cronenweth to light the scene through the walls. He added a small measure of smoke to the scene to complement the effect of cold breath.

Another interesting photographic problem on *BLADE RUNNER* was shooting the interiors of the Spinners in order to create the illusion of movement. The Spinner was capable of moving in any direction and traveling at very high speeds. Cronenweth explains his approach: "In order to create a sense of the vehicle traveling at night, we used several techniques. We built two sets of programmable strip lights, each about eight feet long and each containing twelve photofloods wired individually and dyed different colors. We placed

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them on the exterior of each side of the Spinner cockpit. The bulbs were then flashed at assorted intervals in conjunction with each other and individually. Additional movement was created with set lights activated by a keyboard, so the lights were literally 'played.' Moving the camera on both axes by using double gear heads and using wind, water and smoke enhanced the illusion. To create additional movement for day scenes, we'd use clear globes in the strip lights and a moving arc mounted on a Chapman crane to simulate a change in the Spinner's position relative to the sun."

Although most of the picture was shot on a stage there were some notable Los Angeles landmarks used as locations. The exterior of Deckard's apartment is Frank Lloyd Wright's Ennis Brown house designed in 1924 in a Mayan block motif. The Bradbury Building, designed by George Wyman in 1893, is used for the final showdown as well as for a scene in which Sebastian takes Pris to his apartment. The downtown Pan Am building is used for a scene in which Deckard and Gaff search Leon's hotel room for clues.

"The rooftop sequence at the end of the picture was originally planned to be photographed on real rooftops in downtown Los Angeles," says Cronenweth. "It turned out to be impractical to do it there, however, because of the scope of the shots and the difficulty in achieving some of the effects. We decided to film the sequence on Warner's backlot. This required building a couple of movable rooftop units approximately 30 feet high. In order to show extreme height, we worked very closely with Douglas Trumbull, Dick Yurich, and David Dryer making certain key matte shots using our rooftop sets as foreground cutting pieces with the live action contained thereon. Of course whenever we did a matte shot, we'd use the 65mm camera. We had to do a lot of 65mm photography from very high parallels, which couldn't move at all. This meant reinforcing the normal parallels with additional steel and weight. Carey Griffith made reservoirs in the bottom of the parallels and filled them with several hundred gallons of water. That in conjunction with reinforced steel going up the sides of each parallel and the use of solid bracing made a high rigid camera platform. We spent over two weeks on top of the roofs, turning them from time to time to obtain new backgrounds. We also worked with rain, smoke, lightning and moving shafts of light in this sequence. None of these can be used when making

matte shots because they disappear in the matte area while remaining in the live-action area. One would then be confronted with matching the matte area effects to the live action rain, smoke, etc. The procedure, therefore, when doing matte shots is to put these effects into the composite on an overall basis later."

BLADE RUNNER SPECIAL EFFECTS Continued from Page 693

Work on the special effects evolved as the production progressed. Scales for the miniatures would change because of different necessities. Even as Ridley started to do the live action, it became apparent that we needed different shots than were originally anticipated. About a third of the special effects shots grew out of what was necessary in terms of what was being shot in the live action stages. One of the most difficult things for an effects supervisor is keeping in touch with what was happening on the first unit. I made it my job to get over to the live-action set as much as possible, to be in on meetings and to see what was happening. Because as much as everyone on the first unit wants information to get to us, it is very difficult sometimes to have the information filter down. I went through some rather incredible weeks where I'd work three days, 24 hours straight, trying to stay with their night shooting and our day shooting. It was the only way I felt I could stay on top of what was going on well enough to shoot effects so that when the whole film was put together people would not be sure where one stops and the other begins. I think there are some live action shots that people will say, "Look at that, Charlie, isn't that a terrific effect?" And there are some effects shots where people won't have the foggiest idea that it was an effects shot. And that's how it should be, although I sometimes suspect that we do ourselves a disservice if we are too clever and no one notices the effects work in a picture.

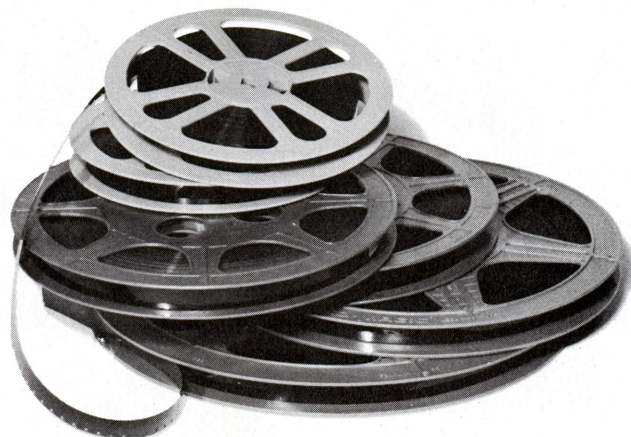
Matthew Yuricich was the matte artist for BLADE RUNNER and he started very early in the project. In fact, he did a matte painting of the pyramid that was intended to be seen through the windows of Tyrell's office. They wanted to front project the image of the pyramid behind the actors so they wouldn't have travelling matte problems. At that point, however, we were racing to complete the miniature before principal photography began, and that was one of the

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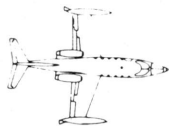


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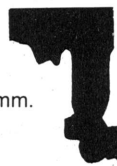
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first sequences scheduled to be shot. So Matthew Yuricich started on a matte painting. It turned out the matte painting was not used. What we did was shoot an 8x10 still of the miniature which was front projected so that it carried up above the heads of the actors. Later the live action shot was combined with a matte painting which even goes in and touches up areas of the room that are a little dark or needed an added touch of some sort. Then we double exposed flying objects into the background.

There were other scenes in the film which would have been ideal for front projection, except that the production schedule was such that we could not have the optical elements ready in time to make the footage for projection. We would just have to shoot the live action against a blank background and then pull a matte off the shot by rotoscoping or whatever. The interiors of the Spinners, for example, were shot without any backgrounds. We drew a matte line for the window by rotoscoping the shot and then created a matte. We then took the window from the vehicle and mounted it on C-stands in the exact position relative to the lens that it had in the live action shot. We measured it all very carefully. Our composited flying shot was rear projected onto a big screen behind the window, and we threw rain and smoke onto the window during the shot. We even worked in some interactive lighting to match our miniature shot. The shot of the window was then matted into the original shot where the original window had been.

David Stewart was director of miniature photography, and his crew started running tests on the models as soon as they became ready. They would expose a piece, look at it, wedge test it and set up exposures for the different kinds of fiber optic lights and so forth. Everything had to be tested. The Spinner, for example, was built in four different sizes and had to be tested in a variety of applications. The scale ranged from 1/4" to the foot to something considerably smaller. Some of the vehicles were one inch long, some were four inches long, some were 18 inches long and some were 4 1/2 feet long. Depending on the kind of shot and whether the vehicle was to be placed into a miniature set or optically composited with something, a different size might be called for. If we weren't getting in too close, we'd fly by the 18" model rather than the big model because the bigger model was more awkward to work with and it was difficult to get the camera far enough



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back. We could use a 16.5 or 17.5mm lens, which is a very wide lens with a 65mm camera.

One of the miniature buildings, incidentally, was actually a space ship from another movie which was reworked into a building for *BLADE RUNNER*. You can't tell it when you see it in the film, but we had the shape which seemed appropriate, and we figured we might as well make use of it.

Ridley Scott worked fairly closely with David in the photography of the miniatures. He would come down occasionally and start a set-up on a shot that we would then follow through on. He really had some terrific ideas in terms of how to backlight things and create kick glances and things like that. People involved in miniature photography know about these kinds of lighting techniques, but they aren't constantly thinking that way. He got us to use live action lighting techniques and to take what seemed to me to be a fresher approach in shooting the miniatures.

Bob Hall was in charge of the optical crew, and they did a terrific job in combining and shrinking mattes and testing and blending. To my mind they are more artists than technical people because, as Bob keeps pointing out to me, it is not an optical *printer*; it's an optical *camera*. What they do is re-photograph something that has already been built and photographed and make it even better. They will blend and soften and add — almost like shooting on stage. They are essentially adding gobos and gauze and doing all kinds of things to create a look that's even greater than the initial look that we came up with.

The explosions composited with the miniature shots were photographed high speed either in the parking lot here or out in the desert for the really big ones. We would select the pieces that we thought would work best and were scaled properly to the size shot we were working with. Then we would project the footage onto a white card positioned behind a tower in the miniature set so that the explosion appeared to come out of the top of the tower, and we would re-photograph it with the motion control camera repeating the move it had done on the miniature set. The towers in the miniature are only three to seven inches high. We would shoot six or seven explosions in this manner in multiple passes to produce a shot with just the six or seven explosions in it. This element would be combined with the shot of the miniature using a low density matte so that the explosions blocked out some of the lights in the back-



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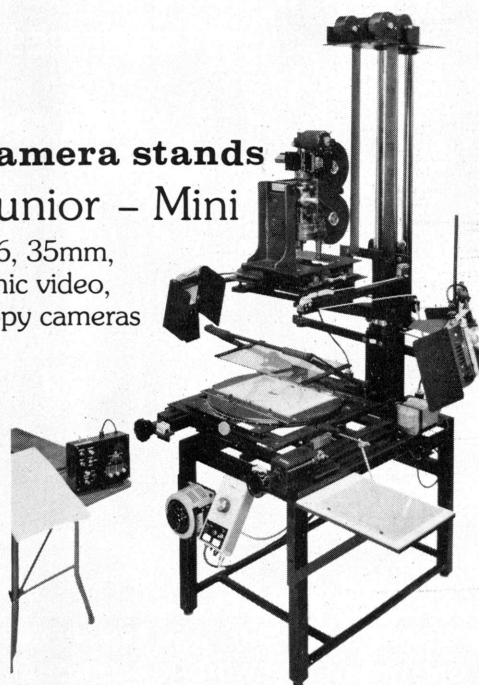
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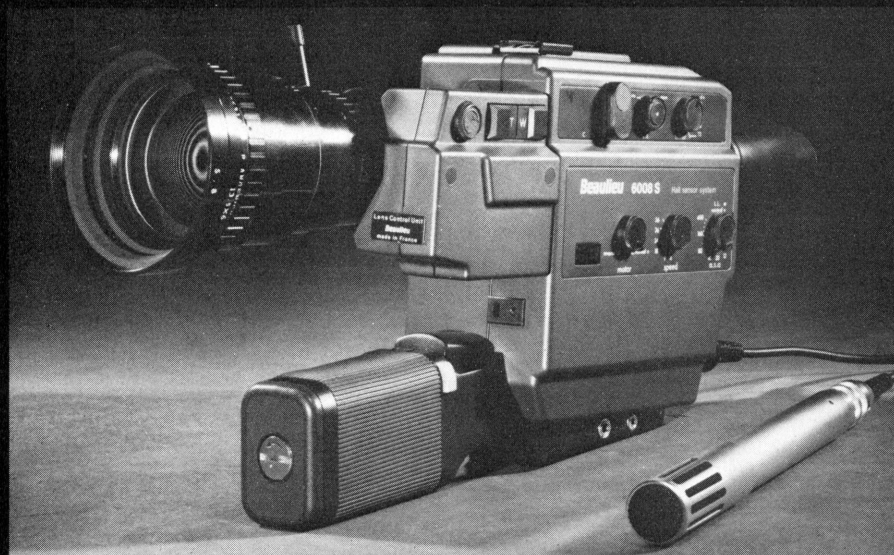
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ground. Smoke and flame have substance, but they are somewhat translucent; and we had to find just the right level of translucency.

A lot of the live action footage for *BLADE RUNNER* involved smoke and rain, and matching this material was quite a challenge. You can't just combine a live action shot involving smoke or rain with a matte shot or a miniature shot and hope to match the smoke or rain. The only way is to shoot the live action shot clean and then add smoke or rain to the whole scene as part of the optical work. This was a problem on the set sometimes, because they were often trying to shoot three camera and cover other angles at the same time we were getting our effects shot. So we always had to say, "O.K., now can we just have one take without the smoke and without the rain." Somebody would always try to sneak the smoke back in for another camera, but eventually we would get a scene that was clean. Then we would do a matte painting for it or add a miniature to it or sometimes both. We might have a matte painting blending a miniature to live action - all relatively clean at this point.

Now in order to add rain or smoke to a scene optically you've got to shoot the rain or smoke against a black background. Shooting rain against black is very difficult to do. First of all you have got to create a black that is big enough to shoot the rain against, and then you have to backlight the rain so that you can see it. We managed to create black areas in the parking lot here and at The Burbank Studios by draping off areas, and we shot background rain, medium rain, and foreground rain for every camera angle we had to match.

Even once we had the rain our problems were not over. You can't just double expose it into the scene. It always looks like a curtain. I remember sitting in a picture one time that had snow in a scene. Obviously it hadn't been snowing when the scene was shot, and someone had said, "Well, gee, we'll just double expose snowflakes, and it'll look like it's snowing." Well it always looked like it was right out in front of the screen, and I got angry at having to look through it. I thought, "Why don't they just take that away and let me see what is going on there because it obviously isn't part of the picture. It's not falling on the people."

One way we sought to avoid this was by setting up little sprinkle spurts to make water drops in puddles when the live action shot was done without full rain. Then in optically compositing the

rain we came up with a scheme which I don't think has ever been tried before. We would make a low contrast black-and-white print of the composited scene to which we wanted to add the rain, and then we would run that print either in bi-pack or in front of the optical negative going through the optical camera with the rain that we had already shot. What that would do was hold back the rain on the dark areas of the scene and print it through only in the light areas. The net effect is that in the final scene the rain only shows up where it would be backlit — which is exactly what happens with real rain. As soon as we did that, the rain seemed to drop back into the scenes. Even though it has been added on top, your eye fools you; and you believe that it's down the street and off in the distance.

The real key to doing the special effects on this or any other picture is the experience and the ingenuity of the people involved. It is not the equipment. The camera we're using is 2BFC Mitchell #3. That's the third 65mm Mitchell ever built, and it has to be at least 30 years old. The two most often used tools here are the C-stand and gaffer's tape. If you took those away from us, we'd be in serious trouble, because special effects work is still basic filmmaking. I know there are other effects houses that have more up-to-date equipment—laser printers and all kinds of things now; and I applaud that. But one of the things I've really appreciated here is that in every department there were people who were just good basic filmmakers — who were very logical, had a good sense of design and went about doing their jobs. And they delivered time after time after time. We came in \$5,000 under budget for our effects work, and I can't think of another major effects film where that's happened. We were able to do it because Diana Gold, the visual effects auditor, and I constantly kept track of the budget; and because, whenever I'd go to the guys here and ask them how long it was going to take to do something, they'd give me an honest, accurate answer. David Stewart is a prime example. They call him "One-Take Stewart" because he knows what will work and what won't work, what you can get away with and what you can't. He can shoot it right the first time, where a lot of other crews around this town would have to shoot three and four and five takes. It's people like him that make it possible for us to do the kind of work we were able to on **BLADE RUNNER**.

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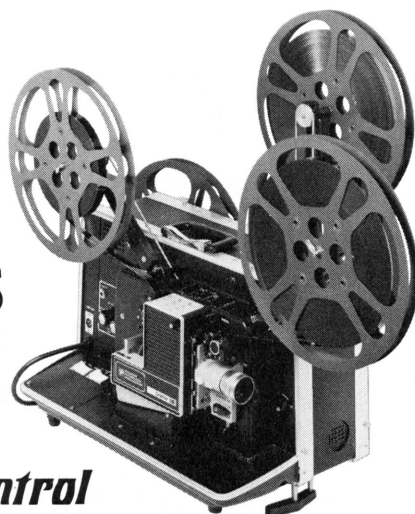
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curred one day when Philip Dick, who wrote the novel on which *BLADE RUNNER* was based, came down to see some scenes that we had been working on. He sat down and was very quiet; and, when the lights came on after we screened some scenes for him, he sat in the chair and didn't say a word." I said to myself, "Boy are we in trouble." After a while he finally said, "I can't believe it. You guys climbed right inside my head. That's exactly what I felt when I wrote that. It's just the feeling I had." Even things like the Blimp which weren't in his book were apparently right on the feeling that he had. You can't ask for much more gratifying feedback than that. ■

BLADE RUNNER CREDITS

Directed by RIDLEY SCOTT
Produced by MICHAEL DEELE
Screenplay by HAMPTON FANCHER
DAVID PEOPLES
Director of Photography JORDAN CRONENWETH
Production Designed by LAWRENCE G. PAULL
Associate Producer IVOR POWELL
Music Composed, Arranged, Performed
and Produced by VANGELIS
Supervising Editor TERRY RAWLINGS
Executive Producers BRIAN KELLY
HAMPTON FANCHER

Special Photographic Effects
Supervisors DOUGLAS TRUMBULL
RICHARD YURICICH
DAVID DRYER

Based on the Novel "DO ANDROIDS DREAM
OF ELECTRIC SHEEP" by PHILIP K. DICK
Executive in Charge of Production C.O. ERICKSON
Production Executive KATHERINE HABER
Unit Production Manager JOHN W. ROGERS
1st Assistant Directors NEWTON ARNOLD
PETER CORNBERG
2nd Assistant Directors DON HAUER
MORRIS CHAPNICK
RICHARD SCHROER
Costumes Designed by CHARLES KNODE
MICHAEL KAPLAN
Art Director DAVID SYNDER
Visual Futurist SYD MEAD
Additional Photography STEVEN POSTER
BRIAN TUFANO B.S.C.

Casting by MIKE FENTON
JANE FEINBERG
Production Controller STEVE WARNER
Auditor DICK DUBUQUE
Assistant Auditor KELLY MARSHALL
Payroll PAULETTE FINE
Script Supervisor ANNA MARIA QUINTANA
Production Co-ordinator VICKIE ALPER
Location Manager MICHAEL NEALE
Camera Operators ROBERT THOMAS S.O.C.
ALBERT BETTCHER S.O.C.
DICK COLEMAN

1st Assistant Cameraman MIKE GENNE
STEVE SMITH
2nd Assistant Cameraman GEORGE D. GREER
Sound Mixer BUD ALPER
Book Man EUGENE BYRON ASHBROOK
Cableman BEAU BAKER
Set Decorators LINDA DeSCENNA
TOM ROYSDEN
LESLIE FRANKENHEIMER

Leadman MICHAEL TAYLOR
Production Illustrators SHERMAN LABBY
MENTOR HUEBNER
TOM SOUTHWELL
Assistant Art Director STEPHEN DANE
Set Designers TOM DUFFIELD
BILL SKINNER
GREG PICKRELL
CHARLES BREEN
LOUIS MANN
DAVID KLASSON

Property Master TERRY LEWIS
 Assistant Property DAVID QUICK
 ARTHUR SHIPPEE JR.
 JOHN A. SCOTT III
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 Special Effects Technicians STEVE GALICH
 LOGAN FRAZEE
 WILLIAM G. CURTIS
 Lighting Gaffer DICK HART
 Best Boy JOSEPH W. CARDOZA JNR
 Key Grip CAREY GRIFFITH
 Best Boy Grip ROBERT E. WINGER
 Dolly Grip DONALD A. SCHMITZ
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 Stunt Co-ordinator GARY COMBS
 Action Prop Supervisor MIKE FINK
 Action Prop Consultant LINDA FLEISHER
 Additional Casting MARCI LIROFF
 Transportation Captain HOWARD DAVIDSON
 Transportation Co-Captain JAMES SHARP
 Publicist SAUL KAHAN
 Still Photographer STEPHEN VAUGHAN
 Producer's Assistant BRYAN HAYNES
 Assistant Location Manager GREG HAMLIN
 Craft Service MICHAEL KNUTSEN
 D.G.A. Trainee VICTORIA RHODES
 Editor MARSHA NAKASHIMA
 Assistant Editor WILLIAM ZABALA
 1st Assistant Editor (English Editing) LES HEALEY
 Sound Editor (English Editing) PETER PENNELL
 Dialogue Editor (English Editing) MICHAEL HOPKINS
 Assistant Sound Editor (English Editing)
 PETER GALLAGHER
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 TIMOTHY McHUGH
 JOHN SEAY
 Matte Artist MATTHEW YURICICH
 Additional Matte Artist ROCCO GIOFFRE
 Assistant Matte Artist MICHELE MOEN
 Matte Photography ROBERT BAILEY
 TAMA TAKAHASHI
 DON JAREL
 Special Camera Technician ALAN HARDING
 Optical Line up PHILIP BARBERIO
 RICHARD RIPLE
 Animation and Graphics JOHN WASH
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 Special Projects Consultant WAYNE SMITH
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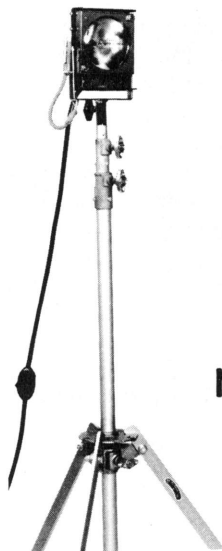
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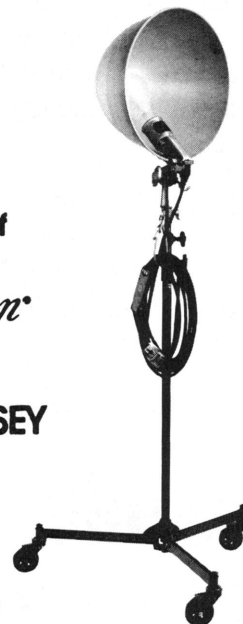


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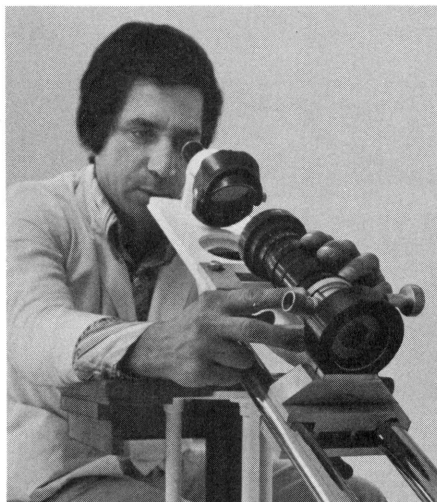
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Continued from Page 646

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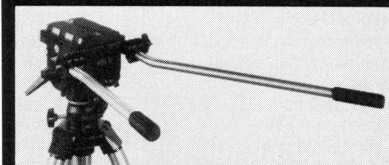
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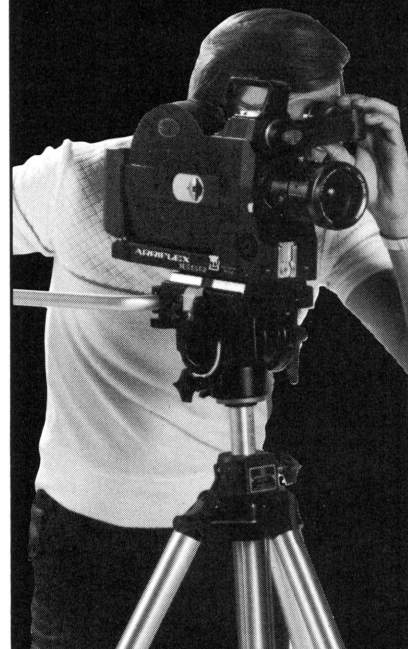
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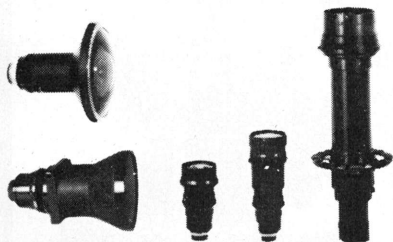
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PHANTOM SET

Continued from Page 677

For the superb mystery-farce, *THE LAST WARNING* (1926), the Opera House became a venerable New York legit theater supposedly haunted by the ghost of an actor who was murdered onstage on the opening night of a play. The eccentric German director, Paul Leni, demanded photographic effects that lent the setting more menace than even the PHANTOM provided. Hal Mohr, ASC, was the man for the job, supplying not only weird lighting and camera angles but some virtuoso crane shots. Other touches—such as having the facade of the theater change into the face of a grinning monster—were added by Jerome Ash, ASC.

Stanley Cortez, ASC, was Mohr's sole assistant (that was the day of the two-man camera crew). He recalls that the corpulent Leni set the cadence of his films by beating a big drum: "Every scene it was bang! bang! bang!"

Carl Laemmle resisted the "talkies" as long as he dared, but during production he ordered that a part-talking version of *THE LAST WARNING* must be made. Accordingly, a 12-minute talking prologue was filmed, along with four minutes of assorted dialogue and a nine minute closing reel with dialogue. For these scenes the camera was housed in an infernal device called an "ice box"—a smothering enclosure resembling a heavily padded telephone booth with a single window through which camera and cinematographer looked out at what they were shooting. Otherwise the noises of the camera would be heard on the Movietone track. In New York, composer-conductor Josef Cherniavsky recorded an excellent symphonic score which runs throughout the picture.

Another celebrated European director, Paul Fejos, followed on the Phantom Stage with silent and part-talking versions of *THE LAST PERFORMANCE*. The German star Conrad Veidt was the fiendish magician, Erik the Great, and Mary Philbin was the heroine. The sound version had another Cherniavsky score and sound effects throughout, plus some bits of dialogue and a fully dialogued last reel. Mohr exhibited even greater camera virtuosity in this one.

"In one scene the camera was supposed to swoop down to the theater stage from a great height," Cortez recalls. "We hoisted Hal to the top of the stage and he rode down on four cables, sitting in a boatswain's chair and shooting with a little DeVry camera. As he reached the stage he turned over and I caught him. It's a wonder he wasn't killed. And that's how we did a zoom shot in those days.

"My most embarrassing moment also occurred on the Phantom Stage during that picture. I was a sort of cocky kid and Hal decided to cool me off. The theater was full of

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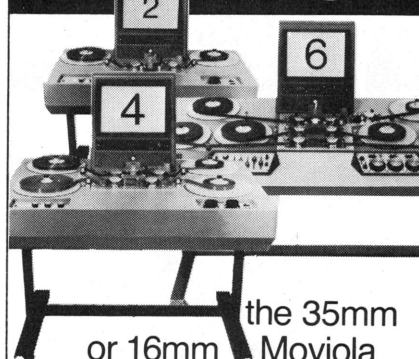
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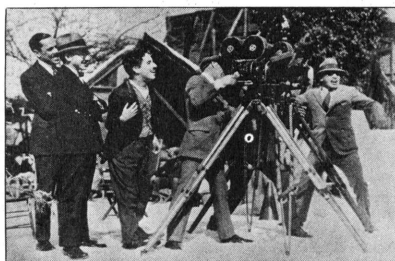
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extras and the stage curtain was down. He had me carry some cans onto the stage, then he and some others grabbed me and pulled my pants off. They held me as the curtain went up, and there I stood in front of 400 people—with no pants!"

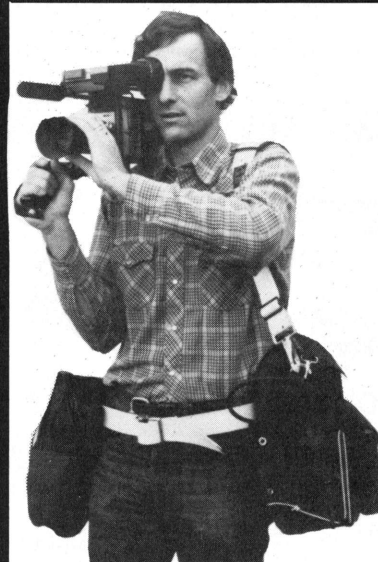
By this time the studios were spending all the money they could spare (and some they couldn't) building sound stages. Many structures were converted into sound studios until more suitable stages could be completed. The Phantom Stage was one of the first of these, and it has served as a sound stage for more than a half-century. The conversion of the great barn-like building cost about \$100,000—a good investment in that it helped Universal catch up with the studios that had realized the inevitability of the talkies a year or two earlier.

Universal announced in April 1929 its plans to produce **THE RETURN OF THE PHANTOM**, a sequel wherein the leading players of the original would recreate their roles "in dialogue, recorded on Movietone." It was evident to everybody concerned that the public would accept no other Phantom than Chaney, who made it clear that he had no intention of attempting such a chore. Like Charles Chaplin, he believed his kind of characterization was suited only to pantomime and that the hated "talkies" would soon pass from public favor. So much for **THE RETURN**.

Seven months later, under the direction of Ernst Laemmle, Charles Van Enger photographed new dialogue scenes on the Phantom Stage, not for a sequel but for a partial remake in which Chaney would be represented only in his original silent footage. Philbin and Kerry performed in sound and two-color Technicolor, Edward Martindel replaced John Sainpolis for new scenes, and a mysteriously disguised actor spoke a prologue as the shadow of the Phantom flitted past. Anonymous singers dubbed the voals to the old operatic scenes and new Technicolor opera excerpts were added.

In the 1930 **PHANTOM**, dialogue was heard from time to time during the first two-thirds of the picture while music and sound effects were employed throughout. David Broekman, a young conductor from Holland, adapted the Gounod score, composed new music and added themes by 24 American and European composers. The part-new **PHANTOM** was advertised as "Massive, Marvelous, Melodious and Mysterious. . . Talking, Singing, Dancing, **TECHNICOLOR!**" They also stated honestly that "Mr. Chaney's role of the Phantom is a silent portrayal."

The public, already sated with "part-talking" pictures, wanted only the so-called "hundred per cent all-talking pictures" and refused to take this **PHANTOM** to its heart. The old footage, even with sound added, be-



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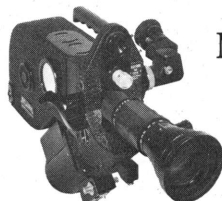
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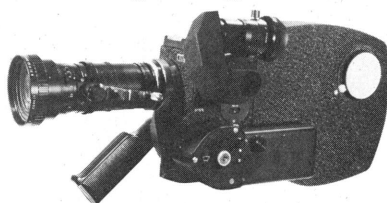
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trays its silent origins because it had been made for projection at 16 frames per second and the sound print has to be projected at 24 fps. The new dialogue scenes also tend to break up the flow of action. The color is quite good, but the overall hybrid effect is inescapable.

Late in 1930, Count Dracula, recently arrived from Transylvania, attended a London Symphony Orchestra concert. In one of the boxes at stage right the vampire, portrayed for the ages by Bela Lugosi, introduced himself to his next victims, played by Helen Chandler and Frances Dade. It became a memorable scene in Universal's DRACULA, whose fans never mind that Royal Albert Hall closely resembles the Paris Opera. Here Lugosi intoned his fondly remembered lines, "To die. To be really dead! That must be glorious!" Tod Browning directed the enormously popular film, which was photographed with grand style by the newly arrived German master, Karl Freund, ASC.

A few hours later, after the cast and crew had gone for the night, Carlos Villarias repeated the same lines in Spanish for director George Melford and cinematographer George Robinson, ASC. Lupita Tovar and Carmen Guerrero were the imperiled ladies. DRACULA, EL HOMBRE VAMPIRO, was filmed at night on the same sets the main company used by day, as was Universal's custom when making bilingual films. Both versions were highly successful when released early in 1931. Foreign versions usually were given second-class treatment, but this one, lovingly produced by Miss Tovar's future husband, Paul Kohner, was a half-hour longer and in some respects a better picture than the English version.

John Barrymore performed briefly on the Phantom Stage a few weeks later for the memorable Warner Bros. production, SVENGALI (1931), directed by Archie Mayo. As designed by Anton Grot and photographed Barney McGill, ASC, it projects a weirdly expressionistic Paris more reminiscent of the German silent films than the "City of Light." So recognizable is the Paris Opera, however, that it was deemed prudent to rent Universal's authentic set for one sequence. In these scenes the mesmerist Svengali (Barrymore) presents his tragic and beautiful singing protegee, Trilby (Marian Marsh), to the cream of Parisian society. The picture is an artistic triumph, but was too highbrow to become a very popular show with the public.

The Opera House remained in use as a stage theater in several pictures before regaining its identity in 1935 in the lavishly produced THE MAN WHO RECLAIMED HIS HEAD. In this World War I drama, Lionel Atwill, wealthy munitions monger, takes Joan Bennett, as an innocent

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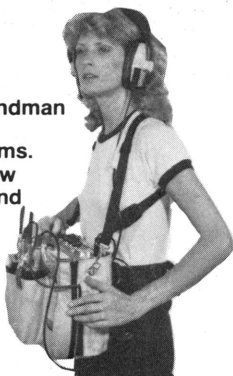
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housewife, to a Paris Opera performance of "Tristan and Isolde." He has railroaded her husband, Claude Rains, to the war front so he can have his way with the wife. Previously, he had robbed Rains of his writings to gain fame and fortune for himself. Rains, gone mad, returns to Paris to retrieve his wife, his child and (as he states it) his mind. Sawing off Atwill's head with his bayonet, he stuffs the grisly memento in his field pack and takes it along for a chat with his lawyer.

This powerful film, directed by Russian-born Edward Ludwig and photographed in an unusual softly lighted style by Norbert Brodine, ASC, proved too grim to find favor with Depression-weary audiences. The opera scenes were handsomely staged, with hordes of players on stage and in the seats.

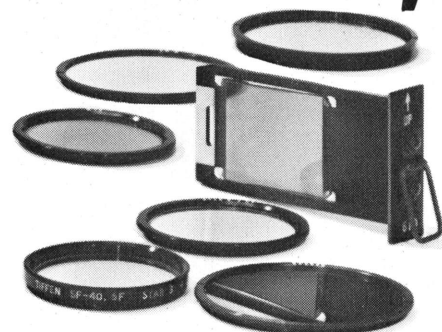
Universal's plans for 1936 included remakes of *THE HUNCHBACK OF NOTRE DAME* and *THE PHANTOM OF THE OPERA*. The distinguished English playwright, W.P. Lipscomb, prepared a new script for the latter and it was announced that either Karloff or Henry Hull would have the title role. Unfortunately, these and other promising works were aborted in March 1936, when Laemmle sold the studio to a group of investors.

The new regime set out to emphasize youth and beauty in the product of the much heralded "New Universal." The numerous mystery and horror films announced by Laemmle were shelved in favor of slick romantic dramas, comedies and musicals similar to those being made at MGM and Paramount.

One of the company's new producers was Joseph Pasternak, a second assistant director on the 1925 *PHANTOM*, who vowed that "nobody is going to get sick or die in any of my pictures." Late in 1936 Pasternak and director Henry Koster launched the starring career of a teen-aged light opera singer named Deanna Durbin in *THREE SMART GIRLS*. The slimly budgeted musical was a huge success and the sweet-faced singer was credited with saving the studio from collapse. A successful sequel followed. Both pictures were photographed by Joseph Valentine, ASC, whose success at making Miss Durbin appear smaller, younger and even prettier than she really was made him the new star's official cinematographer.

Pasternak and Koster lost no time in putting Durbin into the expensive, highly polished *ONE HUNDRED MEN AND A GIRL* (1937). The picture's biggest and best-remembered sequence was filmed on the Phantom Stage with Maestro Leopold Stokowski conducting a 100-piece orchestra in a program of classical excerpts. Valentine's low-angle shots of the conductor were impressive, that famous mane of white hair receiving the same glamorous attention

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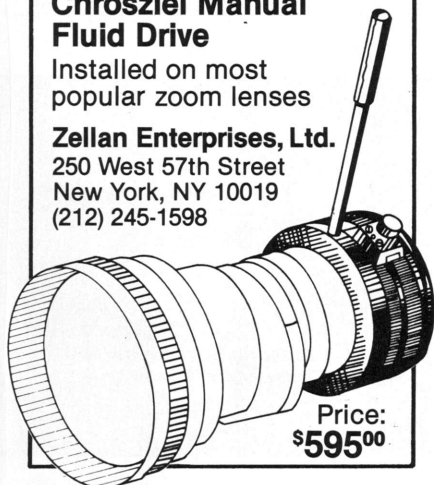
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as Durbin's teeth. Even the foreboding shadows were gone from the repainted and brilliantly lighted Opera House. This same merry atmosphere prevailed in several musical romances that followed.

The warning shadows returned when the veteran German director, Joe May, and Director of Photography Milton Krasner, ASC, undertook to remake **THE LAST WARNING** 11 years after the original was filmed. Although the new version, **THE HOUSE OF FEAR** (1939), was produced on a moderate budget, it was well made and extracted a maximum of menace from the big set. Witty dialogue was delivered by William Gargan, Irene Hervey and Alan Dinehart, who were among the principals menaced by murderers Robert Coote and Tom Dugan.

On December 17, 1940, production of **MAN MADE MONSTER** on the Phantom Stage was halted briefly for a dedication ceremony. Lon Chaney, Jr., wearing his monster makeup from the picture in progress, accepted a plaque from Patsy Ruth Miller, co-star of the 1923 **HUNCHBACK**. Also present were five of the crew of **PHANTOM**, whose names were signed to the sentiment:

*Dedicated to the Memory of LON
CHANEY For Whose Picture
PHANTOM OF THE OPERA This
Stage Was Erected in 1924. Murray
Rock, Shirley Ware, Sherman Clark,
Bob Roberts, Norton Kurland.*

The plaque remained on the door until a souvenir hunter snatched it. More recently, a likeness of the Phantom has been painted on the south side of the stage.

The studio announced in 1941 that Deanna Durbin and Broderick Crawford would star in an elaborate Technicolor version of **THE PHANTOM OF THE OPERA**. Pre-production was begun enthusiastically by Henry Koster, who had some striking ideas about the use of color. The backstage of the opera would be designed entirely in grays, the better to dramatize a trickle of red blood—a heady idea at a time when the few color films being made tended to be overly bright. When Crawford was called to military duty, Charles Laughton, late of RKO's big remake of **THE HUNCHBACK OF NOTRE DAME** (1940), was announced as the new (and less skeletal) Phantom.

The project did not go into production until 1943, by which time the original group was no longer involved. George Waggner produced, Arthur Lubin directed, and the stars were Nelson Eddy, Susanna Foster and Claude Rains. As the Phantom, Rains is a more rational character, seen without disfiguring makeup during the early sequences as a mild-mannered musician and composer who goes mad and becomes the "opera ghost" only after his face has been scarred by acid. His makeup, by Jack Pierce, is more

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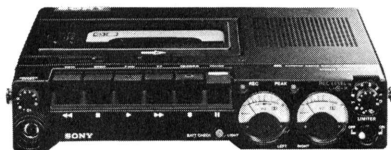
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realistic and less horrendous than Chaney's and is kept discreetly masked until the climax of the film. The production numbers are opulently staged and costumed. The pleasing voices of Eddy and Foster are heard in rousing pseudo-operatic scenes composed by Edward Ward with thematic material from Chopin, Tchaikowski and others.

Despite its very large budget (for the time) of more than \$1,750,000, the picture could not have been made adequately but for the existence of the Phantom Stage. World War II was at its height and the government had placed a strictly enforced limit on new set construction at \$10,000 per production. Art directors Alexander Golitzen and John B. Goodman, aided by decorators Russell Gausman and Ira Webb, refurbished the Opera House for color. The equally impressive subterranean lake and the Phantom's lair were cleverly assembled from existing set elements, some dating back to the silent era.

Hal Mohr was director of photography, with the collaboration of W. Howard Greene, ASC, a Technicolor specialist. Few pictures before or since can equal this PHANTOM for its artistic use of color. The softly romantic, the mysterious and the spectacular all are set forth with equal beauty. The picture was a great success at the box-office.

David Bruce, effectively made up by Jack Pierce to resemble a withered corpse, stalks onto the opera stage in the climactic moments of THE MAD GHOUL (1943). This time the opera house is situated in an American city. Acting under the control of satanic George Zucco, Bruce interrupts singer Evelyn Ankers' rendition of "All For Love" and attempts to murder her pianist-fiance, Turhan Bey. Detectives Milburn Stone and Charles McGraw leap up from critics row to gun down the zombie.

This modest black-and-white chiller was directed by old-timer James Hogan and photographed by Milton Krasner, who made the concert audience seem larger by panning the camera across the patrons in the left boxes down to the stage, then reseating the extras in the orchestra seats for other shots.

Wagner regrouped his PHANTOM crew, including the cinematographers and designers, and utilized the same sets for the beautifully Technicolored THE CLIMAX (1944). Because the setting this time was a mythical kingdom, the proscenium was re-designed, with ornate cylindrical pillars covering the distinctive Paris Opera designs. (These pillars are still in place 28 years later). THE CLIMAX spotlights the considerable talents of Boris Karloff in his return to the screen after a long absence while appearing in the hit play, "Arsenic and Old Lace." He portrays the venerable opera physician, Dr. Hohner, who is haunted by the memory of a

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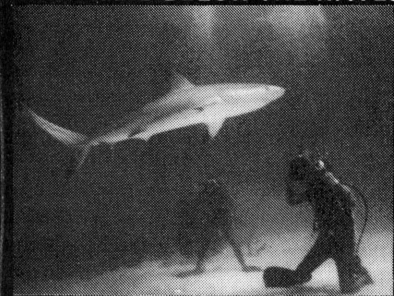
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prima donna who disappeared mysteriously
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down an eerily night-lighted street to the
opera house, where he sits alone in the dark,
empty theater, staring into the shadows as he
relives in his mind the night he murdered the
singer and concealed her body in a secret
vault beneath the auditorium. This flash-
back is a montage seen within a circle of col-
ored lights. When a new soprano—Susanna
Foster—joins the opera, Karloff deems her
voice to be that of his murdered paramour
reincarnated. He uses hypnosis and commits
murder in his efforts to rid himself of the
haunting voice, but dies at last in an acciden-
tal fire in the secret room. The diva is free to
sing and continue her romance with Turhan
Bey.

This production is as opulent as PHAN-
TOM, Karloff is superb and the new opera
material (by Ward and Waggnar out of
Shubert and Chopin) is pleasant. Unfortu-
nately, there are too many dull stretches to
allow the picture to achieve its potential.

Charles Van Enger returned often to the
Phantom Stage during 1944 and '45 in the
course of photographing a string of lively
black-and-white musicals: THE MERRY
MONOHANS, with Donald O'Connor,
Jack Oakie, Peggy Ryan and Ann Blyth;
BOWERY TO BROADWAY, with Oakie,
Susanna Foster, Turhan Bey, Maria Mon-
tez, O'Connor and Ryan; FRISCO SAL,
with Foster and Bey; and ON STAGE
EVERYBODY with Oakie, Ryan and Julie
London.

Although the Durbin-Laughton PHAN-
TOM never came to pass, the stars per-
formed together on the Phantom Stage in
BECAUSE OF HIM, a comedy about a
family of Broadway actors. The black-and-
white photography was by Hal Mohr. For
TIME OUT OF MIND, a costume drama
directed by Robert Siodmak, a long concert
sequence with specially composed music by
Castelnouvo-Tedesco was filmed on the
Phantom Stage. The director of photog-
raphy was Maury Gertsman, ASC, who had
been Krasner's operator.

At the start of A DOUBLE LIFE (1948),
Ronald Colman enters the Empire Theater,
one of numerous exteriors filmed in New
York City during a three-week location trip.
The interior of the theater is the Phantom
Stage, barely recognizable after a facelift
ordered by production designer Harry
Horner. With the removal of the upper tier
of boxes and the addition of a modern revolv-
ing stage and some temporary facing to
disguise some of the more florid embel-
lishments, the set became a perfect replica of
a typical Broadway legit house.

A DOUBLE LIFE, directed by George
Cukor from a script by Garson Kanin and
Ruth Gordon, is a first rate drama. It won

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Oscars for Colman and composer Miklos Rozsa. The story is of a noted actor who becomes so engrossed in the role of Othello that he assumes the murderous jealousy of the character. After murdering a waitress (Shelley Winters) and almost strangling his leading lady (Signe Hasso) during a performance, he kills himself on stage while enacting Othello's suicide. Dying to thunderous applause, he regrets he is unable to take a curtain call.

Much of the success of A DOUBLE LIFE is due to the unusual photographic technique employed by Milton Krasner, especially in the play sequences. Most of these are shown from the stage and backstage areas rather than an audience point of view. Using wide angle lenses and source lighting, he shot across the stage into the wings and outward beyond the footlights toward the audience and the spotlights. The result is an unforgettably realistic yet fantastic world of hazy glare and ghostly, backlit figures.

Another major appearance of the opera house is in the long ballet theater sequence of the Alfred Hitchcock production, TORN CURTAIN (1966). The set was redecorated to look "East German" by designers Hein Heckroth and Frank Arrigo. Although Hitchcock wanted the entire picture photographed by reflected light only, Director of Photography John F. Warren, ASC, found the Opera House too vast for such a treatment. He had to fake the effect by using spun glass diffusers over direct incandescent lighting.

Occasionally the opera house is used without redressing, a certain unkempt quality being desirable for its sometime role as a one-time movie palace which has degenerated into something less. One such appearance is in the hilarious sequence of ANGEL IN MY POCKET (1969) in which a small town preacher, Andy Griffith, secures an ancient theater organ from a burlesque theater. Appropriately, the organ is the one played by the original Phantom. The set was again a burlesque joint where Robert Redford picks up his girlfriend in THE STING (1973).

For decades Stage 28 has been in danger of being torn down and replaced. The acoustics are not as good as the more modern stages and the exterior has a somewhat rag-tag look. Every so often a new studio executive insists upon its demolition, but cooler heads have prevailed. The stage is in almost constant use; all the larger sets for the recent CAT PEOPLE were built there for example. The studio tour guides always point it out to their guests: "And this is the Phantom Stage, where the original PHANTOM OF THE OPERA with Lon Chaney was made in 1925. Some say it's haunted."

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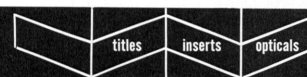
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